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The Future Water Supply of London.

THE Report of the Works and Stores Committee of the Metropolitan Water Board, just issued, goes pretty fully into the subject of the Future Water Supply of London, and the thoughtful spirit in which this important problem is treated promises well for the future management of London water supply under the central authority. After the many years during which the supply of this great necessary of life to London has been in the hands of trading companies manipulating it in the interests of their shareholders, it is gratifying to reflect that we at last see it in the hands of an independent authority which has no interests to serve but those of the public. There are some points, however, in regard to which time and experience may show that the present judgments of the Water Board may need revision; two especially—(1) in regard to the requisite supply per head; (2) in regard to the rate of increase of population in the water area of London. The latter, for reasons to be considered just now, may be over-rated; the former is certainly under-rated.

Before looking to the provision for the future, however, the statistics given as to the present position are worth notice. The following table gives the increase in the London water supply during the past twenty-five years, taken at intervals of five years:—

Year.	Average daily supply in gallons.	Estimated population.	Gallons per head per day.
1881 ..	143,821,037 ..	4,331,619 ..	33·20
1886 ..	154,911,895 ..	4,930,854 ..	31·41
1891 ..	175,408,632 ..	5,232,155 ..	33·52
1896 ..	197,988,052 ..	5,606,920 ..	35·31
1901 ..	215,069,948 ..	6,235,293 ..	34·49
1906-7 ..	225,000,683 ..	6,851,045 ..	32·84

It will be seen from this that while the total quantity of water supplied has greatly increased, the supply per head, except in regard to 1886, has diminished during the last ten years; a progress certainly in the wrong direction.

The Report next proceeds to statistics as to the combined sources from which the 225 million gallons of 1906-7 are made up; we abbreviate the tabulation somewhat:—

	Gallons.
River Thames	128,842,695
River Lee * (Eastern and New River Districts)	44,150,290
Springs and Wells (Lee Valley, Kent, and Southern Districts) ..	51,355,797
Hanworth Gravel Beds	564,008
Hampstead and Highgate Ponds ..	87,893
Total	225,000,683

The total quantity which the Water Board are now deriving, or may in accordance with statutory restrictions derive, from these sources, put down as "total daily abstraction by the Board," is a little more than this, viz.: 228½ million gallons; the reason for the discrepancy in the two amounts, in two nearly contiguous tables, is not quite apparent; but it is not a serious one. In a further paragraph, however, it is stated that the Chief Engineer had called their attention to the fact that although the authorised daily abstraction is given as 228½ million gallons, "it is impossible to exercise those rights to the full until sufficient storage reservoirs have been constructed, and as a matter of fact we understand that the works already in existence together with those authorised by Parliament will not be sufficient for that purpose." This is rather bewildering. There is not much difference between 225 and 228½ million gallons; have we been already for two years past going beyond our rights of abstraction, or is the unauthorised abstraction only represented by the added 3½ million gallons? There is nothing in the Report to explain this.

That however, roughly, is how we stand now. But already it is noted that "the demands upon the Board increase from day to day," and what are the prospects of increased supply? The Balfour Commission put it as follows:—

Source.	Average Daily Supply.
Wells in Kent	27½ million gallons.
River Thames	300 ,,
River Lee	52½ ,,
Wells in Lee Valley ..	40 ,,
Total	420 ,,

Commenting upon this, the Report states that the Chief Engineer to the Board expresses the opinion that the estimate of 40 million gallons from wells in the Lee valley, "without affecting any material interests," is reasonable and may be relied on; though perhaps landowners who find the water level in their own lands depleted by this drawing

* So spelt in the Report. "Lea" is the usual spelling now, but the legal name of the Conservancy is "River Lee Conservancy," which points to "Lee" being the old form, so it was perhaps best to establish uniformity in this respect.

upon the wells of the district may view the matter in another light. In regard to the Lee, the Board have already sanctioned the construction of a new reservoir in the Lee valley, to contain about 3,000 million gallons; and the further estimate from this source is put thus:—

"When this reservoir is available, the works of the Eastern District in the Lee Valley would, during a period of drought similar to that which occurred in the years 1901-3, furnish a daily average supply from the river Lee of 23 million gallons. During a similar period the New River District could have derived 22½ million gallons from the Lee, thus making a total, *during a period of exceptional drought*, of 45½ million gallons."

It would thus appear that the estimate of the Balfour Commission in regard to the river Lee is about right: but that is the ultimate amount that can be squeezed from the Lee. The conclusion of the present Report is that of the existing sources of supply the Thames alone is capable of considerable expansion, by the addition of further storage reservoirs; which reservoirs, of course, would be fed by the flood waters which otherwise run away to waste in the winter and in rainy seasons. And the Chief Engineer has placed before the Board estimates for the gross quantities of storage which would be required to realise an increased average supply from the Thames up to fifty years hence, according to which it is calculated that in 1960 the Thames might be taken to supply a daily average of 570 million gallons.

Considering that for years we have been reiterating and correspondents in our columns have been reiterating the question, why some at least of the superfluity of water in the Thames valley in winter was not caught and stored, instead of being allowed to run to waste, it is a satisfaction to find that, though late in the day, a body which has the ordering of our water supply has actually realised this fact and is definitely prepared to act upon it. There was at one time, it is true, a scare, got up among the doctors chiefly, in regard to the hygienic danger of taking water from the Thames; but experience seems to have proved that adequate filtering is a sufficient safeguard; and we are promised, under the reign of the reservoirs, the further advantage of the increased opportunity which storage provides for sedimentation.

In short, the scare about shortness of water in this country, which was attempted to be established the other day in an article in the *Quarterly Review* (already noticed in these pages), is we believe without foundation, except in so far as concerns the difficulty of concentrating an exceptional supply at certain points. In other words, there is water enough for every one in England, if we can only get it where it is wanted. And of course London, with its enormous area and population, is the great *crux* of all in such a problem. We have to get a great supply of water concentrated within a comparatively small area. Hence the Water Board are quite right in looking as far ahead as they can, and endeavouring to provide adequately for greatly increased demands in the future. The extent of this possible demand depends upon two factors; the rate of increase of population, and the supply per head demanded. It is on these two points that, as already hinted, we think the forecast of the Water Board somewhat fallacious.

In regard to increase of population, the Report records the result of calculations, the details of which are not given, on which, taking as before intervals of five years, the Board arrive at the conclusion that in 1916 they will have to provide water for a population of 8 millions (we are giving round numbers only), in 1926 for 9½ millions, and so on, up to an estimate of 16¼ millions in 1960. According to past rates of increase of the London population these figures seem justified, no doubt. But in our opinion there must inevitably come about, before long, a re-action against this crowding into and around London. There are signs of it already; the desire to found garden cities and to take factories and workshops to country sites is one of them; and the probable increase in the number and the speed of methods of locomotion is likely to increase this tendency. We do not therefore think that the water area of London will grow to the immense and unwieldy proportions of population anticipated in the Report. London is already almost too big to live in or to manage, and we cannot but think that this is a difficulty which will to some extent work its own cure, and that the rage for centralisation will cause a reaction.

On the other hand, in regard to the supply per head, the Water Board are behind the age. They are content with Lord Balfour's estimate of 35 gallons per head, and quote also the authority of Sir F. Bramwell and Mr. Hawkesley, the latter of whom thought it might "in time" be reduced to 25 gallons per head. If we remember right, Sir F. Bramwell also, in a letter in the *Times*, declared his adherence to the 25-gallon standard, speaking with contempt of those who wanted more. The opinions of these venerable engineers probably went back to what may be called the antediluvian period, when respectable persons had a bath on Saturday night, and those who were less respectable never had any. Mr. Hawkesley's phrase, "in time," is delightful, as showing his entire ignorance of the fact that the freer use of water is increasing every year. The Report quotes Sir A. Binnie as having defended the 35 gallons, and said that he should have preferred 40 gallons. So far he was quite right. We will go one better, and say that we should prefer 50 gallons; and more, that many years will not have passed before the Water Board will find that to be a general opinion. A great many professional water engineers seem to think that their special business is to cut down water supply to the lowest amount possible. The true mission of the water engineer, and of the Water Board as the central authority, is not to cut down water supply but to extend it; the true question is not—"How little can we do with?" but "How much can you give us?" and we hope the Water Board will learn to look at it from that point of view, and remember that what is required in a modern city is not a stinted but an ample supply of water, the provision of which is we believe only a question of adequate administration and engineering.

DRAINS AND SEWERS.

THE Committee of the Conference of representatives of the City and Metropolitan Borough Councils on Combined Drainage have drafted a Bill to amend the Metropolis Management Acts, 1855 to 1899, and the Public Health (London) Act, 1891, with regard to "drains" and "sewers." The Report will be found at page 555 *ante*, and it will be seen that the Bill as drafted adopts the definition of a "drain" which appears in the West Ham Corporation Act; and it is suggested that this clause should follow sect. 250 of the Metropolis Management Act, 1855.

The subject is of such importance that it may be useful to shortly consider its legal aspect. Sect. 250 of the Metropolis Management Act, 1855, proceeds, as does also the Public Health Act, 1875, by defining what is a "drain," and then merely defining the word "sewer" as including every description of drain or sewer except such as are defined to be "drains." Under existing legislation it is necessary therefore to clearly apprehend what is a "drain." In the Metropolis Management Act, 1855, a "drain" is defined to include—

"Any drain of, and used for the drainage of, one building only or premises within the same curtilage, and made merely for the purpose of communicating with a cesspool . . . or with a sewer into which the drainage of two or more buildings or premises occupied by different persons is conveyed, and shall also include any drain for draining any group or block of houses by a combined operation under the order of any vestry or district board."

It was this Act which vested the sewers in the vestries and abolished the powers of the Metropolitan Commissioners of Sewers; therefore the combined operation referred to in the section only applies to drains constructed after the Act came into operation—viz., June 1, 1856. The Metropolis Management Amendment Act of 1862, in sect. 112, carried the matter a little further by providing that the word "drain" should also include a drain for draining a group or block of houses by a combined operation, laid or constructed before January 1, 1856, with the authority or consent of the Metropolitan Commissioners of Sewers. It has been pointed out by Mr. Macmorran, in his work on "Drains and Sewers," that these Commissioners were only appointed in 1848, and therefore that this section only applies to drains created between 1848 and 1856.

Such is the existing legislation; and it is obvious that unless there has been a duly authorised "combined operation" every drain which receives the drainage of two or more buildings occupied by different persons has been treated by the Legislature for over fifty years as a "sewer." The proposed Bill to amend this state of the law provides that "the word 'drain' shall be deemed to include any sewer or drain, whether constructed before or after the passing of this Act, with which two or more houses or premises (whether belonging to the same or different owners) are at the date of the passing of this Act, or may at any time thereafter, be connected, or which is used or capable of being or intended to be used for the

conveyance of the drainage of such houses or buildings directly, or by means of any other sewer or drain, to any public sewer, but shall not include any sewer which has been constructed as a sewer to the satisfaction of the Corporation of the City of London, the London County Council, the Metropolitan Borough Councils, or their respective predecessors; or any sewer which has been constructed by any of those authorities at the public expense." This clause is not original; it reproduces the West Ham Corporation Act. The Bill then enacts that "the Act shall be construed as one with the Metropolis Management Act, 1855, and the Acts amending the same." Is this a practicable method of dealing with this difficult question?

Many objections to this clause as drafted will occur to those cognisant with the subject. Its retrospective character is too unlimited; and it would be inequitable, as entirely altering vested rights; the portion of the clause referring to sewers might exclude certain sewers properly vested in the sanitary authorities; and if this Bill is to be construed, as it is proposed, as one with the Metropolitan Management Acts, difficulties in construction will arise.

A simpler method of legislation would appear to be to define the word "sewer," leaving as "drains" all such conduits as are not declared to be "sewers." The legislation of the past has proceeded on the assumption that where drains serve a common purpose for more than one house in different ownership, then, unless they are licensed combined systems, they are to be deemed to be "sewers"; and the many provisions of a complicated series of statutes extending over fifty years have been enacted with a view to this principle. The evil to be remedied is the unauthorised conversion of "drains" into "sewers"; but in carrying out this object care will have to be taken that too narrow a construction is not given to the definition of a sewer. The municipal authorities, so anxious on many subjects to magnify their office, appear desirous, where drainage is concerned, to throw too great a burden on the private individual.

SHOP-FRONT ARCHITECTURE.

FOR half a century back the architecture of the shop-front in England generally, and more especially in London, has been of the lowest order. It has been an ordinance of sham design and sham construction; built-up wooden entablatures, ugly and tasteless brackets to act as "stops" to the cornice, and sheets of plate glass upon which the superstructure appears to stand, with sometimes a slender inadequate wood or iron column inserted, as it were, to save appearances and as a kind of symbol of a support which it could not give. The invention of plate glass and the power of making it in very large sheets has had much to do with this degradation of the shop-front; tradesmen being unable to resist the opportunity to have all the show part of their wares disposed in full view of the public eye, with not even a sash-bar intervening.

There are signs of a certain spirit of improvement in the treatment of shop-fronts, and every here and there we may come now on a perfectly new one which has been designed and carried out with unexceptionable architectural taste, though these instances are still few and far between. The appearance of a small illustrated work on the subject,* by two architects, is therefore rather opportune, and may be taken as another sign that the subject is receiving some attention, or there could be no call for such a publication.

One thing which the illustrations in Messrs. Dan and Willmott's book might serve to show, if shopkeepers can be persuaded of it, is the great superiority of effect of windows divided up by sash-bars, as compared with the prevalent sheets of plate glass. All the old examples of course have these, but so have all the best of the modern ones. The worst of the modern fronts illustrated, and which was only worth illustrating as a warning, is that on Plate 42, all plate glass with a riot of gimcrack ornament above it. We are glad to find that no architect's name is attached to this in the index; but it is in Paris, and may have been the design of a French architect, some of whom are capable of very dreadful things in this way. There is no æsthetic objection to a smaller expanse of plate glass, forming part of a window, and inserted where it is desired to give an unobstructed view; this appears to have been done in one or two of the modern designs without bad results; though the complete division of the whole window by sash-bars gives more scale and greater breadth to the design; and when people come to see how charming some of these old front windows are, and that they really add to instead of injuring the attractiveness of a shop, there may be more chance of having them re-adopted in our shops, as they have been for the most part in our dwelling houses.

The old fronts illustrated in the book are for the most part much the best. Among them we may especially mention the late XVIIIth century one given as Fig. 13, with its columns separating the windows, the curve on plan of the entablature, and the graceful variation in the treatment of the glazing lines in the frieze.* The authors have not forgotten the well-known and charming front of a tobacconist's shop in the Haymarket, which figures as one of the plates, and from which Mr. Walter Cave seems to have taken the suggestion for his equally pleasing shop-front in Dover-street (Plate 30). Among the old examples, too, an especially graceful and complete one in the Adam style is that of 102, Dean-street, Soho (Plate 9), which in proportion and structural suitability is quite perfect of its kind.

There is about the fronts of that date, however, graceful and in good taste as they are, a certain primness and what may be called a thin character of detail which does not represent all that might be done architecturally with the shop-front. We should be glad to see more done with the arch, honestly and constructively used in a monumental manner, as Mr. Norman Shaw has so finely used it in the new Regent's Quadrant façade. The authors do not seem to favour this very much, and rather set up the theory that the lintel structure with the square window opening is the thing demanded by the practical conditions; but we do not see the necessity for this view. The small piece of spandrel of the window cut off by the arch involves no very serious loss of light in comparison with the great superiority in architectural appearance and truthfulness. For the lintel construction, always now, and necessarily, an iron beam of one kind or another, is almost always concealed by a facing of some kind which does not represent the real construction. The authors mention with commendation the method adopted by the late Mr. Waterhouse in a shop in Glasgow, where the girder was left exposed, and the name of the shopkeeper, in bold metal letters, bolted to the girder, and the whole carefully coppered. This kind of method might be employed oftener, and is absolutely truthful, though it has not the monumental architectural character of the stone arch. In regard to the lettering, however, it has to be remembered that it may be subject to change, and that it is not always convenient to make it a permanent and integral part of the design. While on the subject of lintels, too, one cannot help thinking what a far better effect than the iron beam would be produced by a massive moulded oak beam, such as a mediæval builder would often have used in such a case. But this is unsafe according to the Building Act, though experiment has proved fully that nothing is so fire-resisting as a solid oak beam.

The authors refer with commendation, and we quite agree with them in a general way, to the method in some modern shop-fronts of recessing the actual front, or the central part of it, and leaving a kind of exterior vestibule with a portion of the show windows on each side of it. This has not only a good effect, when properly treated, but it should also be good for trade, allowing the possible purchaser to be tempted by a leisurely contemplation of the wares within, out of the crowd of the street pavement. We quite agree as to the effective manner in which this recess is treated in a certain shop in Piccadilly, figured on Plate 21, with a recessed opening flanked by heavy rusticated piers and screened by two columns; unfortunately this is a good deal spoiled by the bad taste of the glazed screen in the rear, which is quite out of keeping too with the rest of the architectural treatment. This shows also, though not in its most pronounced form, a hideous practice which has been followed in the treatment of the glazing of several prominent shops in London, that of making the semicircular head of the shop door expand into a huge cove or bulge of convex section: nothing could be uglier or more unmeaning. We heard a suggestion from an eminent architect as to what it reminded him of, which was too Rabelaisian to repeat in print.

The arcade of the Ritz hotel is a step which the authors commend, and we quite agree with them, and hope that a feature which produces such a capital

* "English Shop-Fronts, Old and New"; selected and specially photographed, together with descriptive notes and illustrations. By Horace Dan and E. C. Morgan Willmott, A.R.I.B.A. London: B. T. Batsford. 1907.

bit of architectural effect may not be found open to any practical objection; we do not see why it should be. In referring to the almost unique example of the Chester "Rows" they quote an opinion to the effect that the system was objectionable on account of making the shops dark; but this is not the case to such an extent as to cause any real inconvenience, and its advantages both in architectural effect and in convenience to the public no one familiar with Chester could question for a moment.

Among the modern examples illustrated in the Plates we may mention as especially good the front No. 80, George-street, Edinburgh (Plate 22), by Messrs. J. J. Burnet & Sons; 7, Portugal-street (Plate 25), by Mr. Horace Field; shop at Enfield (Plate 29), by Mr. Blomfield; the arcaded front in Wigmore-street (Plate 32), by Messrs. Gibson & Wallace; and No. 217, Sauchiehall-street, Glasgow (Plate 49), by Messrs. Honeyman, Keppie, & Mackintosh.

We may add that those who are interested in new ideas for the architectural treatment of shop-fronts will find many suggestions, some of them eccentric, but some of them most admirable and original, in the various illustrations of the kind published from time to time in the *Berliner-Architekturwelt*. The German architects are very inventive in work of this class.

NOTES.

The Constitution-hill Arch.

WE read with the greatest pleasure an announcement in the daily papers that Decimus Burton's arch at the top of Constitution-hill is at last to be crowned with the *quadriga* group of sculpture which was intended by the architect from the first. Burton, who was so vexed in his lifetime by the treatment his work received that he expressed his determination never to do anything more for the English Government, would no doubt have been somewhat consoled could he have foreseen that even at this late date his arch would be properly crowned, after having been for years defaced by the monstrous equestrian statue, placed sideways on the arch, which the older among us can still remember. Of course it is not to be supposed that the Government are undertaking this; our Government never do anything for art; it is due to the liberality of a private donor, Lord Michelham. Mr. Adrian Jones is to be the sculptor, and there could not be a better choice; he is a sculptor who has shown a special talent in the treatment of horses, and had already exhibited two or three years ago, at the New Gallery, a model for the crowning of the blocks of the Hyde Park screen with equestrian groups; a work which, except in our pages, received by no means the attention it deserved. We are not aware, however, that Burton ever contemplated crowning the Screen with such groups; but there is no doubt of his intention in regard to the Arch, and illustrations of it with the Quadriga group on the top are to be seen in the Crace collection. There is only one point in the scheme that we feel doubtful about. We are told that there are to be four horses reined up by a boy charioteer, and in the chariot a winged figure of Peace. So far good; but there is also to be "a lion at the back emblematic of Greater Britain." We do not understand exactly what is meant by "at the back"; but if that lion is to group visibly with the Quadriga he will certainly be *de trop*, in the sense of composition, and we hope he will be dismissed. It would be a pity to spoil a good work by overdoing it.

The Proposed Humber Tunnel.

ALTHOUGH in a more or less out-of-the-way corner and separated by pastoral regions from the great industrial centres of Yorkshire and other counties, Hull is readily accessible by rail, river, and canal. The trade of the port has increased from 51,000,000 in 1904 to 60,000,000 in 1906, and the effect of the dock extensions now in hand will certainly be to bring further business. Another project, which is favoured by the Hull Chamber of Commerce, is the construction of a tunnel beneath the Humber so as to bring a third railway line directly into the city. More than thirty years ago a similar proposal was negatived by one vote by a committee of the House of Lords, and since then nothing further has been heard of the scheme until brought up at a meeting of the Chamber of Commerce by Mr. I. R. Ferens. From an engineering standpoint the construction of the tunnel would be particularly easy, and we imagine that, with the support of the local authorities, it would not be very difficult for the Great Central Railway to obtain Parliamentary sanction, always providing the company feel inclined to take up the idea in earnest.

The Quebec Bridge Inquiry.

THE Commission appointed by the Canadian Government to inquire into the causes of the Quebec Bridge collapse have now taken all the evidence necessary, and their Report will probably be submitted before or soon after the end of this year. From the statements made on one hand by Mr. Cooper, the consulting engineer to the bridge company, and on the other by various engineers employed by the contractors, it is abundantly clear that American methods of conducting important engineering works are not quite so perfect as some people would like us to believe. The contractors had secured the order years before they commenced to prepare the detailed designs, and had done a good deal of this work before Mr. Cooper appeared on the scene. American bridge-building firms are very often their own engineers, and in the case of the Quebec Bridge they do not seem to have taken kindly to the intervention of a consulting engineer. Mr. Cooper takes the view that insufficient time was devoted to the study and preparation of details before the rush of practical execution commenced, and that the urgency and demands of the manufacturing side of the problem have been allowed to outweigh the technical and thoughtful consideration of all the plans. The witnesses brought forward by the contractors claim that the changes which Mr. Cooper made in their drawings caused the failure of the bridge. If the Commission decide that the efforts of the consulting engineer to improve the structure really had the effect of making it unsafe, the contractors will have much reason for congratulating themselves, and a very heavy bill of damages will have to be paid by the Quebec Bridge Company and the Canadian Government.

Ventilation at the Law Courts.

MORE complaints used to be made of the ventilation of the Law Courts in the Strand than of any public building, and similar complaints are now made in regard to the new courts at the Old Bailey. Judges and lawyers declare that they are either suffocated or blown away. As to these complaints, it is difficult to form an opinion without a careful investigation and consideration of the facts, but there appears to be some basis for complaint. Unquestionably the ventilation at the Law Courts in the Strand was constantly very erratic. Pieces of paper could be seen floating in the air a foot above the floor suspended by an upward draught, and in warm weather the atmosphere is still constantly stifling. We suspect that a good deal of this arises from want of care, or perhaps knowledge, on the part of those in charge of the machinery and from a want of accurate supervision, and frequently also from an absence of directions as to a standard temperature. It is the same in railway carriages, where a guard will turn the hot or cold air on or off, not to keep the temperature to a fixed height, but because he himself happens to be chilled or feverish. In English railway trains not a single thermometer is to be seen.

Lessees and Bill-Posting.

AN important decision has been given by a judge of the Chancery Division in the case of Heard *v.* Stuart and others. The action was brought by the lessors of a house and shop to restrain the lessee from letting one of the walls out for bill-posting purposes. There were covenants in the lease "to keep the premises in good repair and condition," "not to alter the external appearance of the house," "not to do or suffer to be done any act which might be, or grow to, the annoyance, damage, or disturbance of the lessors or the neighbourhood." The lessor was the vicar of the parish, who held under a head lease with similar covenants. The wall let for bill-posting abutted on the churchyard and faced one of the principal entrances of the church. The Court held that there had been a breach of the above covenants, and also intimated that it was arguable that a breach of covenants not to carry on any business but that of a tailor, and not to part with possession of the premises or any part of them, had also been committed. In this age of advertising it may be well to add a special covenant in leases prohibiting the premises from being used for advertising purposes, in express terms.

Buckingham-street, Strand.

THE new building, designed by Mr. Paul Waterhouse for the Royal National Pension Fund for Nurses, occupies the site of Nos. 15-6 at the lower end on the northern side of Buckingham-street. No. 15 was for a short period the residence of Peter

the Great. The new buildings overlook York-stairs water-gate and York-terrace, formerly the riverside promenade named Villiers-walk. The old house, No. 15, had been the home of the Institution of Civil Engineers and of W. Black, the novelist, who commemorates it in his "Sunrise." Whilst living there in 1689 the Tsar had Samuel Pepys for his neighbour in the house directly opposite. Pepys lived, 1684-1700, in what afterwards, *teste* Hatton in his "New View," 1708, was the residence of Ralph, first Duke of Montague, when Master of the Royal Wardrobe. Pepys's house is delineated in a picture painted in or about 1756 by W. James, which we have seen in the Queen's Presence Chamber, Hampton Court Palace. Having been rebuilt—for the difference between the old red-brick house and its successor is apparent—as No. 14, it was the home of Clarkson Stanfield, R.A., and in 1826-49, of another Royal Academician, William Etty.

London Institution.

On Thursday last week Mr. Bryan Corcoran gave a lecture at the London Institution on "St. Olave's, Hart-street, and the Old City Wall," which was of interest from the large array of illustrations of the ancient aspect of the streets in the neighbourhood, and of St. Olave's and its interesting collection of monuments. The lecture was also illustrated by plans showing the ancient street lines in the district dealt with, a section of the ancient wall showing the Roman portion and the mediæval additions, and a view of one of the existing visible portions of the mediæval wall. The lecture was mainly an explanation of the lantern pictures. Unfortunately there was the same drawback we have noticed before, and which seems to be the weak point of London Institution lectures, that the lecture far exceeded the hour, and we had to leave before it was finished.

MERCHANTS' MARKS.

In mediæval days, when few people could read or write, emblems and symbols were in general use. The knight at the battle or the tournament had emblazoned on his shield or tabard his personal device or family cognisance, the abbot caused his initials or his rebus to be worked into some portion of his abbey, and the private benefactor of certain aisles or chapels to his village church had his mark, monogram, or arms—sometimes all three—carved on some portion of the fabric. The merchant and woolstapler put his sign or the emblem of his trade outside his warehouse instead of his name—a custom of which the old London signs were excellent examples. By their devices the merchants became known as far as their wares circulated; so much so, that they rarely signed their names even when able to do so, but had their marks, generally with the addition of initials engraven on signet rings, and on old deeds and documents these marks are placed by the names, thus appearing to have been used to authenticate the signature. That such marks were used at a very early period we have abundant evidence, for in "Piers Plowman" we read, "merkes of merchantes medeled," in painted glass; and with increasing trade they developed into a well-established mercantile custom on which the fortunes of many successful and notable families were founded. The examples here illustrated are all from Devonshire, where they are all somewhat common, being found in churches and manor houses, as well as on the gables and mantelpieces of more humble dwellings.

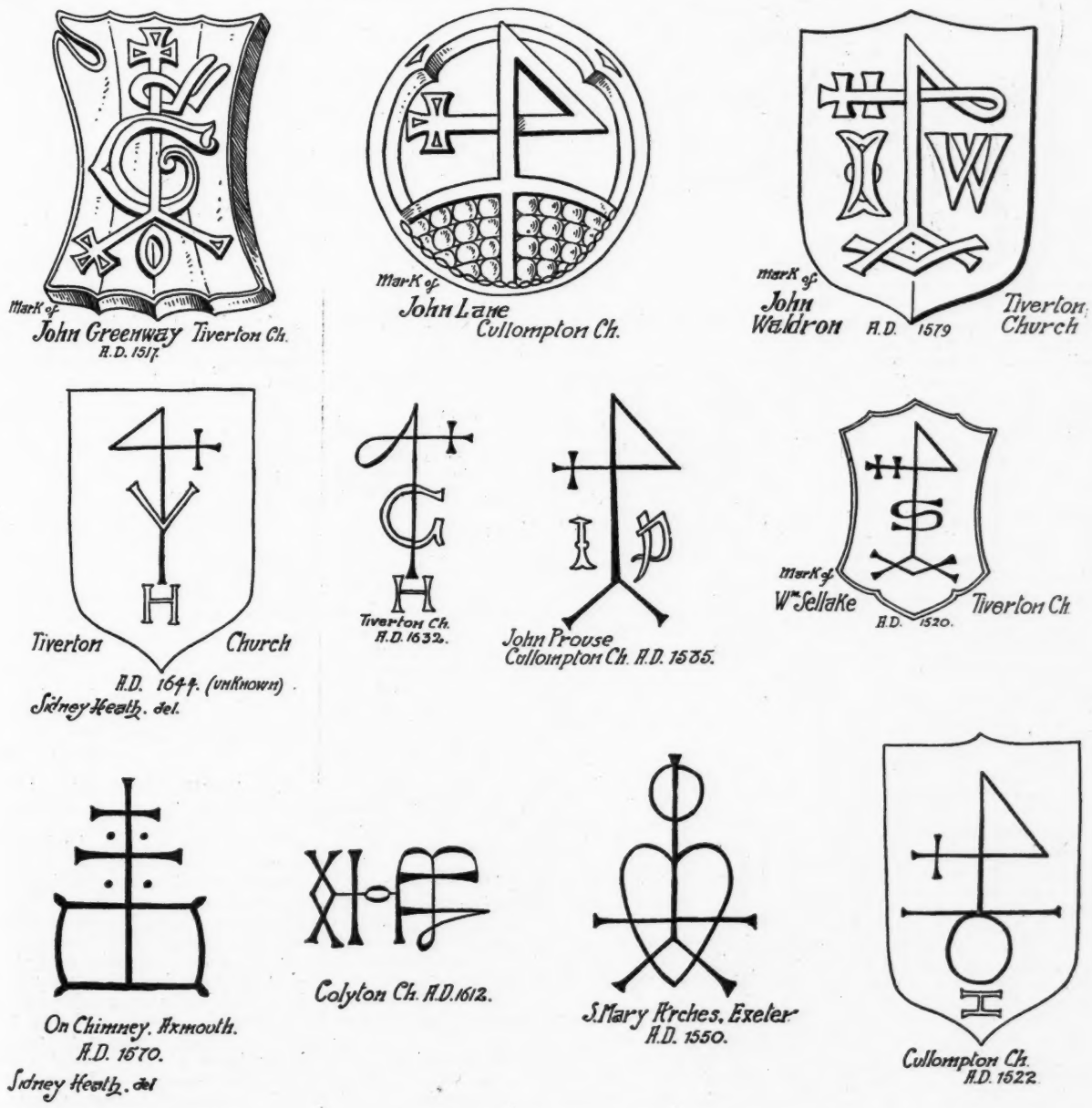
As the staple industry of the country during the XVth and XVIth centuries was the wool trade, it is these merchants whose marks and monograms are most frequently met with in Devon as elsewhere. The various marks appear to be all modifications of one common parent design, but slightly varied for different individuals. What the usual form of the emblem was originally intended to convey is a matter of conjecture; but the *cross* and *trine* at the top, and a sort of pedimental base, with occasionally a circle introduced, no doubt possessed some religious significance. Apart from capitals, shafts, old houses, bench ends, etc., these marks are frequently met with engraven on seals used by the wealthy wool merchants of that time.

S. H.

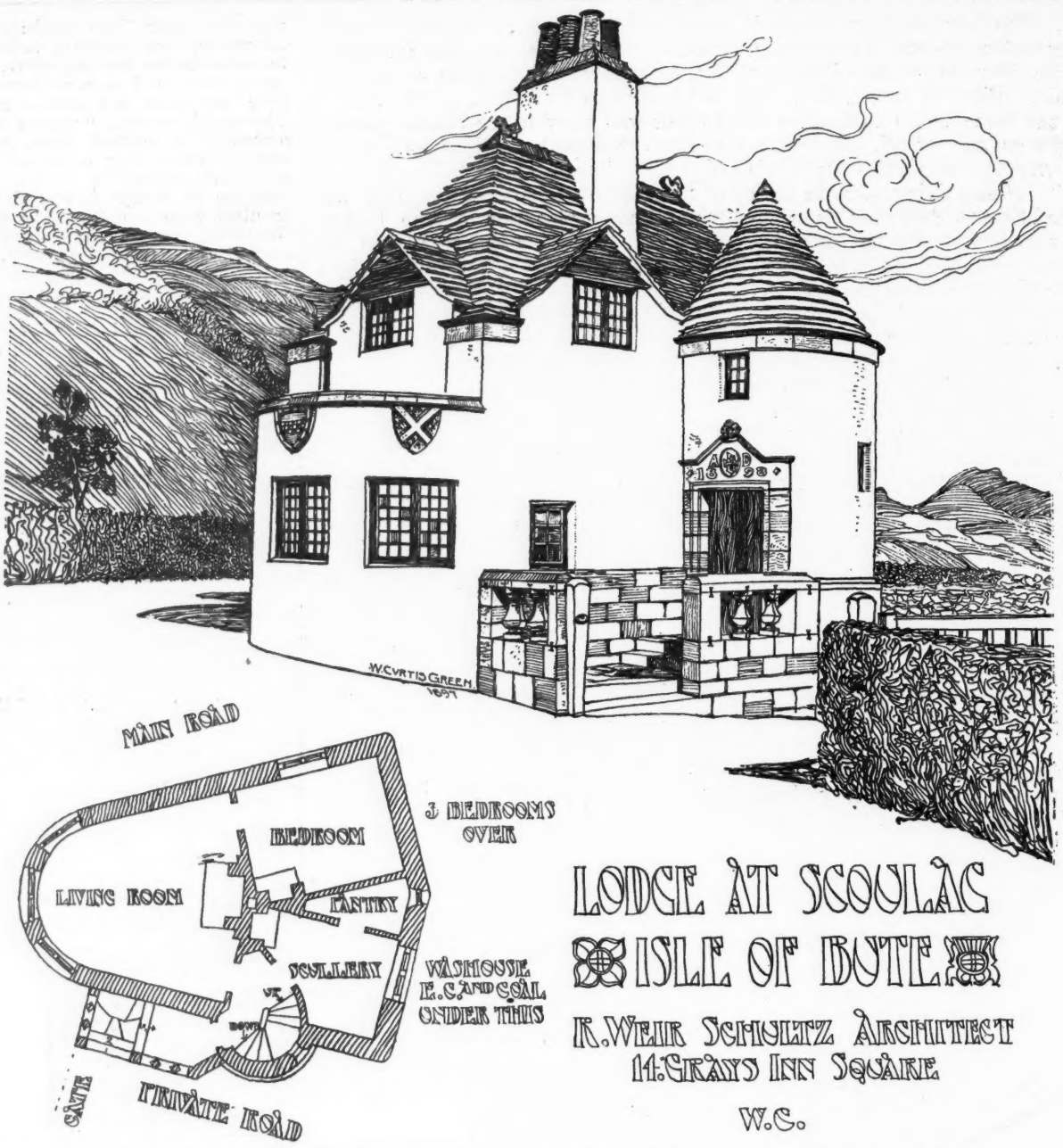
LODGE AT SCOULAG, ISLE OF BUTE.

This cottage was built some years ago as a lodge to one of the side roads into the grounds of Mount Stuart House, the property of the Marquis of Bute.

The private road joins the main road at a very acute angle, and the problem was to


Mark of John Greenway Tiverton Ch. A.D. 1517.
Mark of John Lane Cullompton Ch.
Mark of John Waldron A.D. 1579 Tiverton Church
Tiverton Church
A.D. 1644. (unknown)
Sidney Heath. del.
Tiverton Ch. A.D. 1632.
John Prouse Cullompton Ch. A.D. 1535.
Mark of Wm Sellake A.D. 1520. Tiverton Ch
On Chimney. Axmouth. A.D. 1570.
Sidney Heath. del
Colyton Ch. A.D. 1612.
S. Mary Arches, Exeter A.D. 1550.
Cullompton Ch. A.D. 1522

Illustrations of Merchants' Marks.



plan a cottage that would fit into this angle. The ground also sloped away very steeply from the main road. It was possible, therefore, to get a lower story at the back part of the cottage, and this contains a washhouse, water-closet, and coal store. The plan illustrated shows the accommodation on the ground floor; and in addition there are three bedrooms above, two of which have fireplaces.

The material which was used for the walling was local stone, and this was rough-cast on the face. The entrance terrace, door, coping, shields, etc., being of Gourock sandstone, which is of a pale red colour. The roof is covered with local green slates from a quarry at Kames on the estate.

The work was done by local builders.

On the three shields of the bay window are represented the three principal families represented by the Marquis of Bute. In the centre is the coat of Stuart, on the dexter side that of Crichton, and on the sinister that of Windsor. These are carved in relief, and coloured with the proper heraldic colours of the coats.

VOLUNTEER HEADQUARTERS, SHEFFIELD.—The new headquarters of the West Yorkshire Royal Engineer Volunteers, at the corner of Glossop-road and Gell-street, are now nearing completion. The premises will, when completed, have cost 6,000*l.*, and are of pressed brick with ashlar stone dressings. The plans, prepared by Mr. A. E. Turnell, provided for a large armoury, armoury sergeant's workshop, surgery, waiting-rooms, orderly-rooms, commanding officer's and adjutant's offices, canteen, and billiard-room. On the first floor there will be officers' quarters and mess, dressing-rooms, and non-commissioned officers' mess and billiard-room. The quartermaster's store will be in the roof, and in the basement there will be a board-room, store, cellars, heating vault, kitchen, and scullery.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE third general meeting (business) of the session will be held on Monday, December 2, for the following purposes:—

To proceed with the election of candidates for membership under by-laws 7, 8, and 9.

To announce the results of the November Examinations, Preliminary, Intermediate, Final, and Special.

To consider the following matters:—

Elections to the Fellowship.

The Chairman to announce that the question of the Fellowship has been considered by the Charter Revision Committee, and that they have reported to the Council as follows: With regard to the closure of the Fellowship, the Committee resolved that it be recommended to the Council that at the first opportunity at a general meeting, the President ask the general body which of the following alternatives would meet their wishes: (1) To make an application forthwith to the Privy Council at considerable cost to alter by-law 3 so as to carry out the implied undertakings given by the Chairman at the general meeting of December 3, 1906, that if the open period were extended from December 31, 1906, to December 31, 1907, all the proposed changes in by-laws should be passed through the Privy Council by the latter date; or (2) in view of the fact that early application will be made to the Privy Council for the general alteration of Charter and by-laws, to postpone the question of closure until such time; or (3) to suspend the by-laws relating to the election of members in so far as they relate to the class of Fellows. (According to this alternative no Fellow could be elected during the period of suspension, even from the class of Associates.) Chairman to announce that the Council have adopted the above recommendation, and to inform the meeting that the Council consider the adoption of the first alternative inexpedient on the score of expense. Chairman to take the sense of the meeting by show of hands as to which of the alternatives shall be adopted; and to ask authority for the Council to proceed in accordance with such decision.

Revision of Charter and By-laws.

The Chairman to move the adoption of the Council's proposals for the revision of the Charter and by-laws—these proposals embody the various amendments carried at the special general meeting held July 2 last, the amendments having been adopted by the Council.

Mr. G. A. T. Middleton has given notice that at the meeting he will move various amendments to the Revised Charter as proposed by the Council.

THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.

AT the meeting on the 20th inst., which was a joint meeting of the Architectural Association Discussion Section and the Junior Art Workers' Guild, Mr. C. E. Mallows read a paper on "The Degree of Independence to be allowed to the Craftsmen," He said:—

"I suppose few will deny, even the most cheerful optimists, that we are all, more or less, working in an unsettled state, in a time of transition from an aimless wandering, in a maze of revivalisms to something which looks like a return to sound tradition. What are the reasons for the existence of this architectural wilderness, and of our aimless excursions for the past century and more? So far as I know such a condition exists in no

other calling but our own, and therefore, to a corresponding extent, in the arts connected with it, I think it is due to at least two primary causes, viz., that of the breaking of the fine, sound, and sane classic tradition of Inigo Jones and Wren, when their living art was substituted for the copybook architecture of the socially distinguished dilettanti, Lord Burlington and others, who possessed but a vague idea, and no real comprehension of the principles of architecture; and then in later times to that insane movement known as the Gothic revival: surely one of the silliest ideas in the history of art!

As regards any enduring influence on English architecture, or any real progress being made towards the evolution of a natural and expressive style, such as that of mediæval times, and of the XVIIth and early part of the XVIIIth centuries in England, or of the Renaissance in Italy, nothing of any account will be done, or can be done, until a national school of architecture and the allied arts is established. I don't mean that it should be necessarily on the lines of the Beaux-Arts; a copy of that is not what we require, admirable as it undoubtedly is. That is a French school for the French. What we require is an English school for the English, with the methods of the Beaux-Arts as a basis, and a continuation of XVIIIth century tradition as the object in view. We need a school which shall have this object, combined with the teaching—the practical teaching—of the handicrafts and trades. I should like to see the present excellent schools of this Association ultimately develop (it must necessarily be slow work of time) into a Royal College of Architecture housed in a building of its own, specially designed for the purpose, with the architectural schools grouped in the centre, and around them the various schools of handicraft, the schools of sculpture, and of decorative painting, of metal-work, of woodwork, plaster-work, etc., together with the practical workshops of carpentry and joinery, masonry, and all the principal trades connected with building.

In some such scheme as this, where the architect and craftsman could be trained together from their artistic cradle, and brought into close relations with each other from the first, a thorough knowledge would be obtained by each one of them, not only of the extent and limitations of their own particular work, but also of its relative value and proper place in the general scheme of the master art. Through such relations the same intimate knowledge of materials and construction would be obtained as the artist of former years possessed in such full measure, the necessary sympathy would be established between the architect and craftsman, the friction which often exists between the two nowadays would disappear, and we should revert, working on these lines, which are, in fact, the old ones, to a happy reunion of master-builder and craftsman, and through the reunion to the evolution of a style. It is to the divorce of architecture from building and from the handicrafts, after the period before referred to, that a great deal of our present trouble can be traced.

One of the reasons the old work charms (considered on its merits alone as work of art, and putting aside the value of association and of time interest) is that it shows the intimate sympathy existing between the architect, the craftsman, the designer, and the workman, oftentimes one and the same man, as in the case of the work of the Grumbolds in Clare College, Cambridge, and in the stone-built houses of the Cotswold Hills. Their unity in design and that elusive quality known as style is due to this. One of our aims should be, therefore, to re-establish this same intimate sympathy, and I can see no better way of accomplishing it than by bringing all the arts and crafts connected with architecture together into one comprehensive scheme of education.

No satisfactory or enduring results will ever be obtained without a basis of scholarship in the arts which would be obtained in this way. No genius however brilliant can dispense with education. It is the rock-bottom of all great art. There is no necessity, for example, to spend valuable time in obtaining dusty facts about the life of Inigo Jones and Wren merely to prove that both were highly educated and cultured men. That fact is written all over their buildings, and so cleverly that even that convenient person, the man in the street, can read it. In the art of painting exactly the same thing applies. Think of men like Rembrandt or Velasquez, Whistler or Sargent, all of whom, as artists, in addition to their brilliant genius, were great scholars in their art. To expect a man to produce fine architecture without a knowledge of its grammar is as sensible a proceeding as to expect a musical genius to produce a Beethoven sonata without a knowledge of the elements of music, and yet this is very like what has been happening in architecture until recently, and is gravely advised for the future. I emphasise this point because, as I had said before, I do not think it possible to arrive at any result as to the degree of independence to be allowed the craftsman until the whole of our educational system has been revised and put on right lines.

The most that one can do is to make a few suggestions, such as, for example, that the architect should possess a practical knowledge of the limitations of craft; the craftsman should possess an architectural knowledge of the style he is working in, that there should be a definite understanding between architect and craftsman as to the nature and limitations of their work, as existed in the old days, that the scheme in question should be debated and sketched in outline from the first inception of it—that is to say, the craftsman should thoroughly understand what he is to do, the nature of his decoration, and the part it has to play in the general design. It is the exception to see points like these attended to. How often (in our London street and in buildings, by no means devoid of interest, either as architectural compositions or in the detail of their decorations) are seen the deplorable results of want of thought beforehand in this way, which arise from no other source than the want of knowledge of architectural decoration on the part of the craftsman, and a corresponding want of knowledge on the part of the architect of the place such decoration should take, its value, and proportion? It is a case of the blind hand in hand with the blind tumbling into the ditch together.

Education, however, is the point; obtain that, and the rest will come. I remember some famous advice given to young architects years ago; it was packed into three words—draw, draw, draw. I should like to change that to train, train, train, and then draw. But draw in the right way, and with a definite end in view; not to make pretty drawings, but analytical studies in order to extract the essence of design and construction from the subject before you.

We should not waste precious years in making elaborate and careful drawings of work like that of the early Renaissance in England, which is mainly nothing but a travesty of the Italian Renaissance, designed by men of great artistic abilities, enthusiasm, and genius, but with no real knowledge of the elementary principles of their art. That was the result of genius without scholarship. If you wish to see the result of genius with scholarship, look at the Banqueting-house at Whitehall, St. Paul's, Greek Thompson's work in Glasgow, and St. George's Hall, Liverpool, and modern French and American public buildings by architects of Beaux-Arts training.

I must, however, remember that this is the Discussion Section of the Architectural Association, and it might therefore be as well to raise some points for discussion. Here, then, are a few:—

(1) Should we be satisfied with our present condition as regards training, not only in architecture, but in the arts connected with it?
(2) Are the workers in each brought into sufficiently close acquaintanceship and sympathy to understand each other's aims and objects?
(3) What are our aims and objects at present?
(4) Does not our modern work tell us plainly of the almost complete absence of understanding between the architect and craftsman?
(5) Would some such scheme as I have indicated bring about a better state of things? or
(6) Would it, as I have been told it would, destroy individuality and crush all the life out of the genius of our times?

Whatever opinions there may be on these points, I should think there can be little question as to existence of the necessary ability, both creative and executive, around us to-day. In fact, I believe it has always existed, more or less strongly, during all the periods of art history. Whistler hit the nail soundly on the head when he said there never was any particular artistic age, and there never was an artistic people, but the artist, like the poor, was found in every age.

Even in the days of the Gothic revival there is abundant evidence of artistic ability, and that often of wonderful strength and power, as the Houses of Parliament and the Law Courts testify.

The work of the craftsman, too, was characterised by the same qualities, as is clearly evident in the details of these buildings. The sad thing about it all is that it was forced into wrong channels, and was therefore to no purpose, so far as the evolution of style in architecture is concerned.

What great results we should have had to-day if all this energy, enthusiasm, and ability had been directed to one end! If the classic tradition had never been broken, and a clear and definite system of training had been based upon it from those days, the influence would have spread in every direction, and I believe the buildings of our City streets and suburbs would have been easily first in the world in architectural interest, and in the beauty of their details in the handicrafts; our suburbs and streets would have been pleasant to live in and look at, and we should have escaped from such terrible nightmares as Shaftesbury-avenue. We should have avoided years of wasted efforts through straying in all directions in search of all kinds of impossible things, and, I believe, as a natural result, we should have been in the possession, years ago, of some such national school as I have indicated. May we venture to prophesy, without being accused of foolish enthusiasm and the possession of still more foolish ideas, that perhaps in a hundred years' time we may have attained some such state, and be in the happy position of knowing what we have to do and possessing the power of doing it easily and naturally. Each man, architect, and craftsman in his allotted place, concerned only with his work and the problems in hand, untroubled with any abstract questions such as that which I may have avoided to-night, viz., the degree of independence to be allowed to the craftsman."

THE ARCHITECTURAL ASSOCIATION CONVERSAZIONE.

THE President's annual At Home and Conversazione was held in the galleries of the Association, at 18, Tufton-street, on Thursday of last week, and was attended by a large number of members and guests.

The President and Mrs. Cave held a reception during the first part of the evening; later, the proceedings were more informal, and the opportunity which is given at these annual meetings for seeing old friends formed the chief motive for the remaining time, which passed pleasantly till eleven o'clock. One was glad to see faces which are not often seen at the Association, and to observe that many of the leading spirits of the annual excursion made a point of being present.

The musical selections given from time to time by the Architectural Association Orchestral and Choral Societies, which are ever increasing in efficiency, seemed to be regarded as an attractive accompaniment to the buzz of conversation—hardly the way in which an artistic society should employ the art of music. That which is not worth listening to, as a feature of the entertainment, is not worth having; and we hope the time will come when the managers of these entertainments will recognise that music is worth something more than to be used as an accompaniment to talk.

According to custom, there was a show of drawings and photographs on the walls. Mr. Ronald P. Jones lent his fine set of photographs of Sicilian Greek work. Students' work was exhibited in the top gallery, and an interesting series of photographs taken on the annual excursions by that excellent photographer, Mr. A. W. Hennings, was shown in the main central gallery. The suite of rooms off this showed water-colour drawings by Mr. Ernest George, Mr. Wallace Rimington, the late G. E. Street, R.A., and the late G. F. Bodley, R.A.; also some of the fine original pen drawings by the late H. W. Brewer, lent by the *Builder*, for which they were originally made.

Last, but not least, there were two really

magnificent tinted drawings by John Ruskin, and a set of aquatints after Ruskin, all representing Venetian work. Lovers of Venice would be particularly glad, perhaps, to see the "Arabian windows" in the Piazza Santa Maria Mater Domini, full of the charm of the original.

In the same room was a large model of old London Bridge, with London town beyond as a scenic background, which attracted much attention, the work of Mr. John B. Thorp, of 98, Gray's Inn-road; also some smaller models of houses at Letchworth, by Mr. Lionel F. Crane, and some drawings illustrating vanishing bits of London, lent by a committee formed to make records of such bits. The students' work included some excellent studies of Spanish work by Mr. Whitelaw, and good vacation sketches by Mr. Blackford.

HOUSE AT LETCHWORTH.

THIS house has been built at Letchworth, from the plans of Mr. Stonebridge, architect (Bedford), for the sum of 400*l*. The materials are Plowman's red bricks, rough-cast left in its natural state, and Broseley tiles. The principle was to use good materials and treat the building in the simplest manner.

It is a fair example of a country house built in an economical manner.

THE INCORPORATED INSTITUTE OF BRITISH DECORATORS:

MURAL PAINTING.

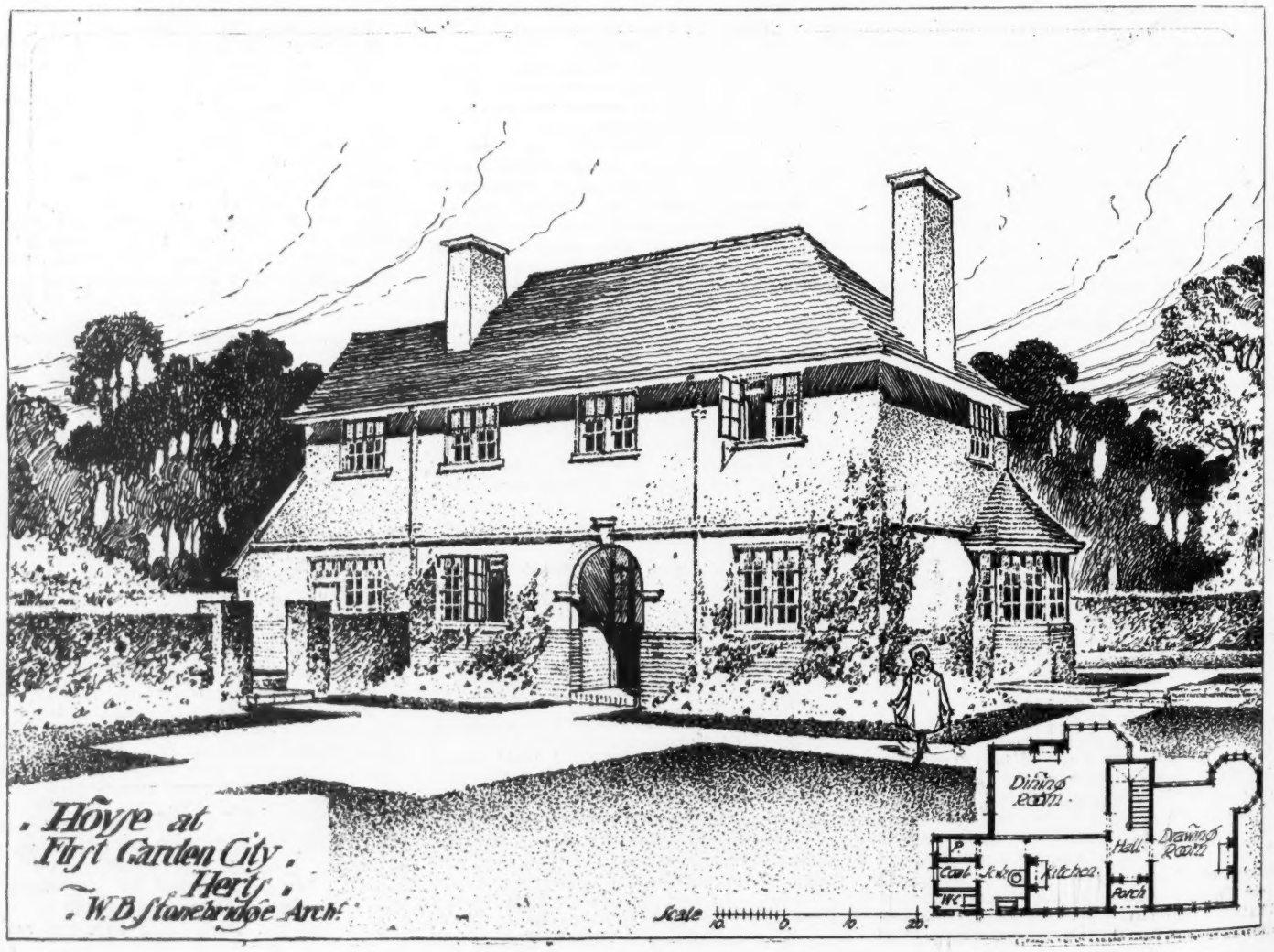
A MEETING of the Incorporated Institute of British Decorators was held on Monday at Painters' Hall, Little Trinity-lane, E.C., when Sir William Richmond delivered a lecture on his method of mural painting.

Mr. J. D. Crace, President, explained that the lecture was the result of a visit of his to the New Sessions House, Old Bailey, where Sir William Richmond had carried out some beautiful work, and when he asked Sir William to speak to the members of the Institute about his method the lecturer of the evening kindly promised to do so.

Sir William Richmond said that we happened to be living in a decade of experiment more or less, when so many old truths which had made the world what it is were apt to be lost sight of. The value of tradition was enormous, and if it were to be cut off suddenly from us we should go back to a state of savagery of the grossest form of Philistinism. We had to go back thousands of years to find the roots of tradition. We found it in Crete, 4500 B.C., we found it in Egypt, in Greece later on, in Phœnicia, in Rome, Italy, and later on we found the same traditions in England. That being so, it was unfortunate if we cut the thread or broke the chain connecting us with the experience of 5,000 years ago. And so, whatever he knew, whatever he practised, was not his own discovery in the slightest—it was what was known 3,500 years ago.

He would give them a little picture of what the old artists' education was like. Let them imagine themselves in Florence in the XIVth century in the early morning at five o'clock. They would see troops of young men coming towards the shop, for it was not a studio then, but a shop where young men were apprenticed to learn their business—and painting is a business, a craft. Among them were middle-aged men as well as little boys, and the master also, for he was industrious and worked with them. The little boys would clean out the shop, then the palettes and other vessels—for they were taught to be tidy and neat—and the various grades of students went through their appointed work—the less advanced traced drawings for the master's work, and the more advanced would work round the master himself, gleaning from him what he knew. They would see from this that the art of painting in its great days was a trade, a craft; men were taught to make pictures as a carpenter is taught to make boxes. If he developed a distinctive talent or genius he had something to stand upon, because he knew the grammar of his craft. Nowadays, we missed this education, and young students wished to jump into fame before they could walk, to become masters before they knew how to be pupils. The great artists could be counted on our ten fingers; there were grades and grades, and nobody could create genius, but education could supply the well-grounded lines of a man's power of expression, and that was what was lacking in our modern education. In order to substantiate his point, Sir William referred to Raphael and Sir Joshua Reynolds. Raphael's work, notwithstanding the close allegiance that his early work bore to his master's, always showed a difference. There was in it a certain spontaneity, a certain deep feeling, and it was the same when he came in contact with Michelangelo. Reynolds, under Hudson, learnt his trade, for Hudson knew his business, and if Reynolds were in that room with them he would no doubt tell them that he learnt his free manner through the hard training that he had under Hudson.

As to his method, which, as he had said, was no discovery at all, but was the method of many old painters, first of all, they had to make up their mind that they would work directly upon the wall. If they painted upon canvas, and had the work transferred to the wall, they were certain to get into difficulties. Wall-painting directly upon the wall was a very arduous task, for they must be quick, swift, and sure, and they must not be surprised if their palette and what they were trying to paint looked utterly different from anything they had ever seen in their studio. They must be prepared to expect that if the picture they had painted upon the wall were removed into any other place, that under the conditions of light in which it was exposed it would in all probability look utterly ridiculous. The design must be seen, as it were, from the wall, and the best plan then was to put the design that the mind had conceived very, very swiftly upon paper, and to leave it alone. Then in a few days' time to put a piece of tracing paper over that design, without altering it, and to trace it down to a hard line, moving the tracing paper over it if they wanted to make any variations in the planes or spaces, but adhering infallibly to the first sketch. That method of tracing might, in some senses, weaken the first impression; but they should not be dismayed by that, for they would always be adding something, and that was experience; whereas, if they destroyed or altered the first visual impression which they had put upon paper, they had nothing left at all, and his experience taught him that in ninety-nine cases



out of 100 they would go back to the original design and find it was better than any of those made subsequently. William Blake said: "Never destroy first lines; first lines are the voice of God." When one was young and inexperienced, they would be perfectly right to make full-sized cartoons for all they did, and draw them as well as they could—hard, sharp, definite. When they got to his age they would wish they had drawn a great deal more with hard lead pencil and less in charcoal. The drawing on the cartoon made, they would have a lot of trouble. They had to pounce the design to the wall—to prick it on in little tiny lines. That used to be done in the Italian shops by little boys of twelve or thirteen years of age, and it was now done by men of two or three and twenty. They had to take care that the wall was clean, and that the white was not injured; then they had to correct the outline, and finally they had to show a beautiful drawing on the wall, perfectly done in everything—proper distance of one thing from another, and, in fact, the proper perspective; painting and colour would do the rest. The great test was to establish the proper tone of all the objects they saw in the street, and that was done by the sky. If it was a gloomy sky, then the design would be cloudy; if a morning effect, they painted the morning, and so on. Then they painted the farthest distances, gradually coming up to the foreground, which was painted last, observing the relative tone and differentiating the tones just as they were differentiated in Nature by the most subtle and delicate relations; remembering what was a most important fact, that strong design did not reside in violent contrasts, but in delicacy of relations. Having the whole of this environment in their picture—the sun, the sky, the light and shade—in a sense they would feel that they were not standing against a flat wall, but in the middle of a semicircle and inside the picture. The more they could realise not only that they were in a semicircle, but in the centre, even, of the circle, the more true the tone and colour of the picture would be.

Sir William Richmond then referred to two sheets of contrasted colours which he had prepared for the lecture, and which showed the influence of one colour upon another. They afforded enough differentiation of tone for any large mural painting by arranging them properly. In some subsequent remarks he stated that milk was a better spreader than wine, and it was undoubtedly used by the Latins in their mural work. As to tempera, the word was a ridiculous term, and people who talked about it often did not know the difference between temperas. Oil tempera had often been tried upon walls, and he did not know of a single instance in which it had been a success. There was the extraordinary difference between oil tempera and egg tempera or glue tempera, that whereas the oil tempera made the colour dull, dirty, unpleasant, all the other temperas had a sense of translucency. A visit to English cathedrals and churches where there was old tempera work and modern would show this; the old work was full of light and joy, however slight, and the modern was dull and heavy. The result of what they intended to paint depended upon their ground. If they wanted to paint a strong, opaque, vivid bit of local colour, they painted on a black ground; if they wanted it to be light and airy and like spring flowers, they must paint it upon white. But in the scheme of colour, be it dark or light, they must beware of spots, for if they were there the work was certain to look weak. If the eye travelled in a calm and pleasing way over the entire surface, it knew neither black nor white. Strength in such work lay in perfect gradation.

A short discussion followed.

On the motion of the Chairman, who made some interesting remarks on the subject of apprenticeships referred to by the lecturer, a hearty vote of thanks was accorded to the lecturer, and the meeting terminated.

QUAKERS' MEETING HOUSE, HAMPSTEAD.—The new meeting-house built in Heath-street, was opened on Friday, November 22. The cost amounts to rather more than 3,000*l.*, and Mr. F. Rowntree was the architect.

Builders' and Contractors' Column.

EMPLOYERS AND TRADE UNIONISM.

THE case of Bond *v.* Ashwell & Nesbit, Ltd., and others, which has occupied one of the Courts for several days, has disclosed the difficulties involved by the intervention of unions in the relations between employers and employed. The action was brought by an iron-moulder, with the support of his union, against his late employers and against an employers' association, of which a member of that firm and the Secretary were also officials, for conspiring to prevent Bond from obtaining employment elsewhere. Without going at length into the facts, it may be said that Bond was an exemplary workman who had been in Ashwell & Nesbit's employ for some twenty-nine years. In March, 1906, Bond, owing to changes in the firm's business, was the only union man employed as an iron-moulder, but he was on excellent terms with his fellow-workmen, and was receiving 2*l.* a week, which he stated was 2s. a week above the standard trade union rate. At the instance of his trade union Bond gave notice to leave the firm's service in March, 1906. The reason for this appears to have been that the firm had commenced to do piecework, which the union did not allow its members to undertake, and the union had placed the firm on the "unfair list." His employers pressed him to remain with them, but he said should he do so he would be expelled from his union and lose his contributions, which had extended over twenty years; there were also negotiations with the union with a view to an arrangement that Bond should remain with the firm. The firm was associated with other firms in the Lancaster Masters' Association, and one of the rules of this Society was that on employing any workman reference should be made to his last employer for a character. Bond on leaving the firm applied for employment to three firms, also members of the Association, but was either refused employment or given notice after a short time. It is impossible to review the evidence in this note, but it appears that in one case the man was turned off from shortness of work, but in the other two cases because the firms did not desire to employ a man who had been withdrawn by the union. In the result the jury negatived the existence of any conspiracy, and found that the defendants had not coerced Bond or induced firms not to employ him. It is certainly unsatisfactory that an excellent servant should be compelled to give up his employ for no reason at all except the arbitrary rules of his union, but it is to be observed that the employers seem to have been no more guilty of conspiracy than are the employers of every domestic servant, where custom provides for a character being obtained. The employee was the victim of the rules of his union. The evidence was that for the firm to carry on business profitably it was necessary that some piecework should be undertaken, and the union set its face against piecework. It is to be noted that the firm never inquired whether a man was a union man or not, but from the evidence it appeared that they were anxious to retain a union man, because they undertook work for corporations, whose contracts required trade union wages to be paid and trade union conditions to be observed. A consideration of the facts of this case appears to afford sufficient comment on the policy adopted by corporations and other public bodies of thus fostering trade unionism. Will any unprejudiced person think such a policy for the benefit either of employers, employees, or the trade of the country?

WORKMEN'S COMPENSATION.

The recent decision of the House of Lords in the case of Cleverley and others *v.* Gas Light and Coke Company requires noting, especially in connexion with the case of Williams *v.* the Vauxhall Colliery Company commented upon by us June 29 last. Cleverley, on February 11, 1905, whilst engaged as a stoker, sustained injuries to his chest, back, and neck, by the breaking of a rod of iron. Cleverley was subsequently troubled with tumours or swellings on the neck, some of which were removed in hospital in March, 1905. Up to that time his employers had paid him half his weekly wages, and then they entered into an agreement which was duly registered as a memorandum to pay him 18s. a week during incapacity. He remained incapacitated for work until his death, which occurred on March 29, 1906. His dependants then claimed compensation, and, at the hearing of the arbitration, the County Court Judge found that his death was not due to the accident, but to disease; but he held that the respondents were estopped from relying upon this fact by reason of the agreement made with the deceased man and the payments of compensation made thereunder. The Court of Appeal reversed this latter finding, and the House of Lords have affirmed the Court of Appeal. The agreement was held only to amount to an admission that there had been an accident, and that the respondents were liable to pay compensation, but not to extend to an admission of the cause of death. In Williams's case it was held that a claim by defendants was separate and independent from the claim by the workman himself, and that it could not be abandoned by the workman in his lifetime. The distinction between the two cases is that in that case death was found to have been the result of the accident; whilst in Cleverley's case there was a finding that the death was due to another cause.

THE EXTENSIBILITY OF PLAIN AND REINFORCED CONCRETE.

In 1902 M. Considère announced his conclusion that reinforced concrete would submit, without rupture, to a proportionate elongation of from ten to twenty times that which would cause the failure of plain concrete.

Subsequently, Professors Talbot and Turneaure, in America, and Mr. Kleinlogel, in Germany, made tests by which it was found that, although visible cracks might not appear in reinforced concrete until the elongation became, say, ten times that which would rupture plain concrete, there nevertheless developed at a much earlier stage on the surface of moist reinforced concrete under test, narrow wet streaks, or watermarks, which indicated exceedingly fine cracks. Hence these three investigators concluded that the rupture elongation of reinforced concrete was not actually greater than that of plain concrete.

M. Considère afterwards made fresh experiments inducing him to confirm his former conclusions, which were supported by some results of Professor Schüle of Zurich.

Professor Bach, of Stuttgart, realising the desirability of setting the matter at rest, next undertook a series of tests, particulars of which were published a short time ago in the *Zeitschrift des Vereines Deutscher Ingenieure.*

Professor Bach's results are certainly instructive as the subjoined summarised extracts will show.

Five plain concrete tension test specimens gave elongations ranging from 0·000065 to 0·000090, and four other similar specimens gave elongations from 0·000080 to 0·000100. Therefore the mean unit elongation was approximately 0·000084.

Sixty-eight plain and reinforced concrete beams showed elongations ranging from 0·000060 to 0·000100 giving the mean unit elongation of 0·000080.

Twenty-one reinforced concrete beams showed the unit elongation of from 0·000090 to 0·000100, giving the mean unit elongation of 0·000095.

All these figures refer to the proportionate elongation at which water-marks were first noticed, and not to visible cracks.

Professor Bach found that visible cracks first appeared on the tension surface of plain concrete beams at the elongation of from 0·000080 to 0·000125, and on the tension surface of reinforced concrete beams at the elongation of from 0·000100 to 0·000367. Thus the mean unit elongations were, approximately, 0·000103 for plain concrete, and 0·000234 for reinforced concrete.

Taking mean values, it would appear that the elongation of plain concrete at the first actual crack is about 1·25 times the elongation of the reinforced concrete at the first water-mark, and that the elongation of reinforced concrete at the first actual crack is about 2·5 times the elongation of the first water-mark. Even if we take for reinforced concrete, 0·000090—the minimum elongation at the

first water-mark—and 0·000367—the maximum elongation at the first actual crack—the latter is only about four times the former, judging, of course, solely by the experiments of Professor Bach. Probably the difference may be much greater in many cases, but the results here quoted show that careful designers must not take it for granted that the elongation at the first crack will invariably be ten or twenty times the elongation at the first water-mark, an indication which really denotes finely sub-divided failure of the concrete, although not causing final rupture such as overtakes plain concrete at a far earlier stage.

Forecourts to Shops and Tramway Widening.

The case of Corsellis *v.* London County Council has been carried to the Court of Appeal (the *Builder*, p. 536, Vol. XLIII.). This complicated case we fully discussed in a note in our issue of March 23 last, and with that part of the decision which turned upon the question whether a strip of land 3 ft. in width, which had been left abutting on the street before some shops erected in the year 1883, formed part of the roadway, having been dedicated to the public, or whether it remained private property; the Court affirmed the Court below, holding it private property. A further question arose, however, as to the powers of the Council in widening their tramways. If this strip of land was not part of the public footway, then the footway by the widening of the tramways was left less than 6 ft. in width, which the Court below held constituted an infringement of the London County Council Tramways and Improvement Act, 1901, sect. 13. This part of the judgment was overruled by the Court of Appeal on the ground that the County Council possessed the necessary powers to make the alteration in the tramway under the London County Electrical Power Act, 1900, and that those powers were not affected by the subsequent Act; whilst the Wandsworth Borough Council had power to alter the footpath under the Metropolitan Paving Act, 1817, a power they had legally conferred on the County Council by agreement between the two bodies. The result of the decision seems to be to leave the matter much as it was before, except that no damages can be assessed for the reduction in width of the footpath.

Contractor's Claim for Damages.

The action brought by a firm of contractors, Messrs. Jones & Son, against the Maesteg Urban District Council, which has occupied the Official Referee for a considerable time, has ended in a finding for the plaintiffs in the sum of 18,909*l*. 3s. 7d. The facts of the case will be found summarised in the *Builder*, November 9 last, page 506. The Official Referee found (1) that the contracts were legally executed and binding upon the defendants, and that there was nothing to render it physically impossible to carry out the work, and its completion was not rendered dependent on the ability of the defendants to raise the money; (2) that the clause in the contract which gave the defendants power to omit any portion of the work did not operate to enable the defendants to determine the contract; (3) that in such a contract there is an implied condition to complete the contract in a specified time, and that the employer will allow the contractor to proceed. One or two minor points as to the supplemental contracts for work at extra depth and the price of the clay to be used were also decided in the plaintiff's favour. Lastly, on these findings the learned Referee had to consider how the damages were to be assessed, and he proceeded on the basis that the work done had to be regulated by the contract prices, whilst the damages for the unfinished work were represented by the profit which would have been made had the defendants not prevented the works from being completed, and by the expenses incurred in providing labour and material for the completion of the work which had been frustrated. It will be remembered that the damages claimed were 40,000*l*.

School-Chapel, Wolverton.—The Primitive Methodists of Wolverton have opened a new school-chapel. The building will accommodate 300 people, and has a suite of rooms attached. The architect was Mr. Henry Harper, of Nottingham, and the builder Mr. Edward Green, of Northampton.

SIPHONIC DISCHARGE *V.* FLUSH-DOWN WATER-CLOSETS.

On Friday last week, Mr. Jennings, of Messrs. G. Jennings, Ltd., lectured in the South London Art Gallery, Peckham, under the auspices of the Camberwell School of Arts and Crafts, on sanitary engineering science. Professor Henry Adams, M.Inst.C.E., presided, and there was a large audience.

Mr. Jennings said that during the last quarter of a century sanitary engineering science had undergone an entire revolution and great progress had undoubtedly been made, though much still remained to be done to improve the sanitary condition and ventilation of buildings of every description. The profession of the sanitary engineer, being so intimately allied with the business of plumbing and drain-laying, had, in the past, unfortunately, been treated by many with contempt and derision; but it might be safely stated that no branch of the engineering profession possessed such opportunities for promoting the health and well-being of the human race. "Peace hath her victories no less renowned than war," and the field of sanitary engineering was a glorious one in view of the benefits and blessings and increased longevity it conferred on humanity; and countless was the vast army of heroes in the fight with the causes of disease whose histories and achievements were unrecorded, and whose memories were unhonoured and unsung.

Of all sanitary appliances the water-closet might rightly claim to be the most important, being necessary alike to the dwelling of the poor and that of the wealthy, and he had therefore chosen for his subject that evening some of the advantages of siphonic discharge as compared with flush-down or wash-down closets, and the necessity for disconnecting water-closet apparatus from the soil pipe or drain.

There were a great many varieties of wash-down water-closets; but the fundamental principle or design was more or less alike, being based on the cottage hopper basin and trap, the formation of which necessarily retained but a small quantity of water, sufficient only to form a shallow seal or trap between the apartment and the drain. The clearance of the basin was mainly dependent upon the perfect making and burning of the flushing rim and the force of the discharge from the flushing cistern, which should be of not less than three gallons capacity to ensure removal of the contents of the basin. In action, the trap of a wash-down closet was never emptied, the water merely overflowing into the drain in equal quantity to that admitted into the basin through the flushing rim. The shallow seal of water retained in the trap was so easily susceptible to variations of increased pressure from the drain, as well as to siphonage and evaporation, as to form but an uncertain and unreliable barrier or safeguard against drain gases escaping into the apartment. It had become the practice on the part of many architects and others when selecting sanitary fittings for buildings, to dispense with urinals, and direct that pedestal closets with hinged seats should be made to serve the requirements of both closets and urinals. That procedure in the case of private closets or where the use was restricted to a few persons might be advantageously followed; but in public offices and similar situations where large numbers of persons congregated, no benefit was gained by the omission of urinals, as, if the closets had to answer the double duty of water-closet and urinal, more closets must obviously be provided than would be the case where the closets served only the one purpose.

Passing on to siphonic discharge closets, Mr. Jennings said these might be considered a comparatively recent introduction, and might be divided into two classes; one type being actuated by the withdrawal of the air between the two traps by aspiration, or a sucking upwards due to the down rush of water in the flushing pipe, and the consequent discharge of the foul contaminated air into the closet apartment. This type of closet consequently was condemned by sanitarians as dangerous to health, and, furthermore, the aspiration of the air in the outgo of the closet seriously retarded the escape of the contents. The second type was a closet known as the "Closet of the Century" in which the siphonic action was generated by the introduction of a jet of water into the outlet leg of the closet, driving the air between the two traps, through an escape pipe into the external air, thereby creating a vacuum in the outlet and securing the discharge of the basin by atmospheric pressure.

The main features and advantages of the apparatus were the security of two water seals, one contained in the lower trap of a depth of 1½ in., the other in the basin itself and 3 in. in depth; provision being made for a constant circulation of fresh air being maintained between the two traps, and thereby the fresh air disconnexion of the water-closet apparatus from the soil pipe or drain, which was advocated and sought for in arranging the discharges from baths, lavatories, sinks, urinals, and other sanitary appliances, but which had never hitherto been satisfactorily accomplished in connexion with water-closet apparatus, was obtained. The large bulk of water retained in the basin—some 6 in. in depth, with a surface area of 6 in. by 9 in., and a water seal or trappage of 3 in.—was equal in quantity to that retained in a valve closet, but was secured without mechanism. A further unique and valuable feature peculiar alone to this form of closet was the entire forcible discharge of the contents of the basin by employing atmospheric pressure equivalent to about 15 lb. per square inch; the consequent concentrated flush being sufficient to discharge the drain with a solid bore of water during the time the closet was in action, thereby ensuring the complete removal of the fœcal deposit and scouring the drains in an efficient manner not possible with closets of any other system.* An important and much appreciated improvement in the mode of flushing these closets consisted of a simple form of pull-up regulating supply valve to which the water surface could be connected from a large main storage cistern, thereby dispensing with the noisy, unsightly, and objectionable flushing cisterns which were the bugbear of nearly every householder; whilst the requirements and regulations of the various water companies and boards were met by a simple contrivance in the interior of the valve limiting the quantity of water supplied at each lifting of the handle to the maximum quantity prescribed and allowed.

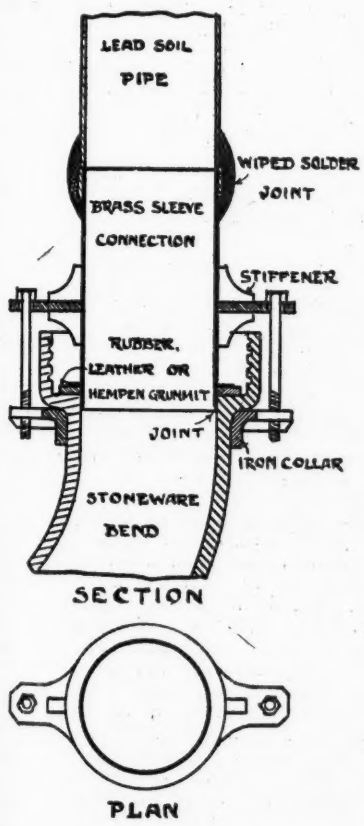
Whilst sanitarians generally had for years past been in unanimous agreement as to the vital importance and necessity of all waste pipes from lavatories, baths, sinks, urinals, overflows from cisterns, and rain-water pipes being thoroughly disconnected from the main or underground system of drains and discharging waste-pipes at the ground level over a gully trap, it appeared a curious anomaly that no consideration had apparently been given to the advisability and need of disconnecting the water-closet apparatus from the soil pipe or drain. Yet it would be admitted by all sanitary engineers and authorities that if it be essential to sever the direct connexion of waste pipes conveying what might comparatively be termed innoxious liquids and matters, it should be of paramount importance to disconnect the water-closet from the soil pipe and drain through which were discharged the foulest and most deleterious liquids and matters—the exhalations and gases from which were known to be of the deadliest character—so as to render impossible, under any circumstances, the admission of air of any kind from soil pipes into the dwelling or building with which they were connected. Notwithstanding the importance of this subject, the only attempt towards adopting some precautionary measure was made some thirty years since by a few engineers, to fix a siphon or hydraulically-sealed trap at the foot of the soil pipe. This imaginary safeguard was at once found to be delusive and objectionable: as, while under certain conditions it formed no reliable barrier to the passage of air from the sewer or drain, it effectively retarded the flow and free escape of the sewage into the sewer, and destroyed the valuable scouring power of the liquids due to the momentum generated by falling from the upper floors of the building. Furthermore, as was clearly demonstrated by the late Mr. George Jennings in a letter to the *Times* in

* We are inclined to think that this claim is justified; but it must be pointed out that the closet in question is the manufacture of the firm with which the reader of the paper is connected, and that we are not responsible for his recommendation.—Ed.

1865, the hydraulic seal of all traps in direct connexion with main sewers was so very susceptible to, and so easily affected by, increased pressure of air on the sewer side of the trap as to be practically fallacious and dangerous to depend upon as a security for the purpose for which they were employed.

Although over forty years had elapsed since the publication of that letter, no effective measures had apparently been introduced to remedy this dangerous condition of sewers and drains. At the annual meeting of the Municipal and County Engineers, in Liverpool, last summer, a paper was read on these defects; but by many engineers it was considered that a hydraulically-sealed disconnecting trap on main drains was worse than useless, and it should be dispensed with. Ventilation on a large scale, such as the entire abolition of intercepting traps and the continuation of all soil and other waste pipes above roof level, would, by establishing a constant circulation of fresh air within the sewers, check, if not entirely prevent, the generation of sewer gas. Owing, however, to the great variation in the heights of buildings in cities he was afraid it was impossible to adopt such a universal system. Nevertheless, much could be done to improve the state of the air in the public sewers by carrying ventilating pipes from the sewers above the roofs of many high buildings which were to be found in nearly all large towns.

Mr. Jennings concluded his lecture by illustrating by means of diagrams the working and advantages of the patent Century Closet. Mr. Jennings also illustrated his method for effecting an improvement in the method of connecting metal waste-pipes to stoneware drains by a form of joint secured by two bolts and clips, as shown in the accompanying illustration, by which it will be seen that



the lead soil-pipe is attached by an ordinary wiped plumber's solder joint to a brass thimble, the latter being securely fixed in the socket of the stoneware socketed bend or drain-pipe by means of two incorrodible metal bolts screwed into a metal ring on the back of the earthenware socket, thus affording an absolutely sound and permanently dependable connexion. A slightly modified pattern is also supplied for connecting iron soil and waste pipes to stoneware drains.

CITY CORPORATION ELECTIONS.—Mr. G. Gordon Stanham, architect and surveyor, has been elected a member of the Court of Common Council. He represents the ward of Dowgate.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday, in the County Hall, S.W., Mr. H. P. Harris, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Hammersmith Borough Council 1,500*l.* for baths and washhouses, and Wandsworth Guardians 2,250*l.* for poor law purposes. Sanction was also given to Paddington Borough Council to borrowing 2,000*l.* for paving works, to Wandsworth Borough Council to borrowing 2,510*l.* for street improvements, and to Woolwich Borough Council to borrowing 3,000*l.* for electric lighting purposes.

Tramways.—The following recommendation of the Highways Committee was agreed to:—

"That a notice in writing, under the seal of the Council, be served upon the Metropolitan Electric Tramways, Ltd., requiring the company to sell to the London County Council, under the conditions and in the manner provided by sect. 43 of the Tramways Act, 1870, the portion in London of the undertaking authorised by the Harrow-road and Paddington Tramways Acts, 1886, 1891, 1893, 1894, 1903, and 1904."

Housing.—On the reception of the report of the Housing Committee Mr. Howell Williams urged the Council to consider the question of housing the very poor. He also called attention to the overcrowding at Tottenham and asked that the Council should expedite building on the Tottenham estate. The Committee reported as follows as to dwellings completed, etc.:—

"The dwellings completed and opened during the year contain accommodation for 7,749 persons in ten tenements of one room, 244 tenements of two rooms, 661 tenements of three rooms, 118 tenements of four rooms, 115 tenements of five rooms, and 698 cubicles in a lodging-house for single men. Particulars of the estates and buildings at which such accommodation has been provided are given in the following table:—

Locality.	Name of Estate and Buildings.	Number of Persons Provided for.
Clerkenwell	St. John-street estate—	
	Mallory-buildings	164
Fulham	New King's-road estate—	
	Bearcroft-buildings	220
Islington	Caledonian estate—	
	Bruce-buildings	352
	Burns-buildings	180
	Knox-buildings	352
	Scott-buildings	180
	Wallace-buildings	340
Lambeth	Brixton-hill estate—	
	Briscoe-buildings	718
Southwark	Webber-row estate—	
	Algar-buildings	230
	Delarch-buildings	230
	Dauncy-buildings	230
	Mawdeley-buildings	223
	Overy-buildings	230
Westminster	Bruce House, Kemble-street—	
	Lodging-house	698
Croydon	Norbury estate—	
	85 cottages	700
Tooting	Totterdown Fields estate—	
	263 cottages	1,742
Tottenham	White Hart-lane estate—	
	122 cottages	980

Accommodation for 41,602 persons was provided by the Council up to March 31, 1907, the accommodation consisting of 1,845 cubicles in Bruce House, Carrington House, and Parker-street House, 1,484 cottages and 5,990 tenements in block dwellings."

It was agreed:—

"That authority be given for a deputation, consisting of members of the Housing of the Working Classes Committee and the Finance Committee, to make representations to the President of the Local Government Board with a view to accommodation in dwellings provided by the Council in suburban districts being regarded, in suitable cases, as accommodation required by statute to be provided by the Council in connexion with the displacement of persons of the working class.

That, in pursuance of sect. 11 of the Housing of the Working Classes Act, 1903, application be made to the Local Government Board for its consent to the provision on the Totterdown Fields estate, Tooting, of such number of buildings adapted as shops as may from time to time, in the opinion of the Council, be desirable to serve the requirements of the persons for whom dwelling accommodation on the estate is provided."

High-street, Clapham.—The Improvements Committee recommended that the estimate of expenditure on capital account of 1,167*l.*, submitted by the Finance Committee in respect of the widening of High-street, Clapham, at Nos. 84 to 96, be approved.

Indication of Houses of Historical Interest.—It was agreed that a memorial tablet be affixed to No. 17, Elm Tree-road, N.W., to commemorate the residence thereat of Thomas Hood; and that a memorial tablet be affixed to the house in Holly Bush-hill, Hampstead, at present occupied by the Hampstead Constitutional Club, to commemorate the residence thereat of George Romney.

Schools.—The Education Committee reported that work was proceeding in connexion with the erection of five new schools, the rebuilding of one school, the enlargement of five schools, and the improvement of five schools, giving a total additional accommodation of 6,620, at an estimated cost of 171,654*l.* Two secondary schools were in course of erection, and a training college was being enlarged, giving a total additional accommodation of 1,348, at an estimated cost of 55,250*l.* Three technical institutes and a day training college were also in course of erection, at a total estimated cost of 167,610*l.*, in addition to several other minor undertakings.

Mr. Shepheard complained of what he termed the desultory manner in which the present Education Committee were attempting to meet the needs of London in regard to the provision of school accommodation.

Mr. J. T. Taylor, in replying to a long discussion on the subject, said the late Education Committee had intended to provide 22,000 new school places, but having failed to do so, it was left to the present Committee to go thoroughly into the matter. In regard to 9,089 places proposed by the late Committee, no change had been proposed, and the sites necessary were being acquired and plans were in progress. There were 3,450 places to be made under slightly modified conditions, and 6,750 places proposed by the late Committee were found to be unnecessary, which meant a saving of 222,500*l.* on capital account, and 40,500*l.* on annual maintenance.

Means of Escape in case of Fire from Factories, Dwelling-houses, etc.—The Building Act Committee reported as follows:—

"On July 24, 1907, the Council approved a statement with reference to its requirements in respect of the means of escape in case of fire from factories and workshops and certain classes of dwelling-houses and shops in accordance with the provisions of the Factory and Workshop Act, 1901, and the London Building Acts (Amendment) Act, 1905. It has since been pointed out to us by the London Chamber of Commerce that certain slight additions and alterations were desirable, and we have given careful consideration to these suggestions. We consider that some of the suggested alterations are unnecessary, but that others, which make for elasticity without derogating from the Council's powers under the Acts, should be accepted. We also agree that it should be made clear that appeal can be made to the Tribunal of Appeal or that there is a resort to arbitration in certain cases. We have, therefore, revised the statement, and we recommend that the statement (No. 1) separately submitted by the Building Act Committee on November 26, 1907, with reference to the Council's requirements in respect of means of escape in case of fire from factories, dwelling-houses, etc., in accordance with the provisions of the Factory and Workshop Act, 1901, and the London Building Acts (Amendment) Act, 1905, be approved."

At the request of Messrs. Sharpe & Pilditch, the Chairman of the Committee agreed to take the report back and to bring up a report showing the alterations made.

White Hart-lane Estate, Tottenham.—It was agreed:—

"That, subject to the architect's certificate, an allowance of 500*l.* be made to Mr. G. E. Pulford out of the retention moneys held under his contracts for the erection of cottages on the Tower-gardens section and the second part of section B of the White Hart-lane estate; and that the matter be referred to the Finance Committee with a view to the payment of the money."

London Men for London Work.—In regard to the acceptance of the tender of Messrs. Rowley Brothers, of Tottenham, for the erection of Hackney car-shed,* the Highways Committee reported as follows:—

"We have considered whether this is one of the cases in which the Council should endeavour to secure the employment of local labour by the contractors. With this end in view, we have asked Messrs. Rowley Brothers whether they would be prepared to assist the Council by giving preference, as far as possible, in the employment of casual or unskilled labour required for the work, to men *bond fide* resident in the County of London, and Messrs. Rowley Brothers have intimated their willingness to adopt this course."

Mr. Phillimore moved that the recommendation be referred back on the ground that Tottenham was London, and that the part referring to employment would be of no effect.

Mr. McKinnon Wood referred to the Committee's report as a sham and a mockery, but he suggested that his friend should not press the amendment to a division.

* See full list in our tender column.

Mr. Whitaker Thompson said what the Highways Committee had at the back of their minds was the desire, if possible, to provide work for unskilled labour at this time of the year in London. Was he to understand that members of the party opposite were out of sympathy with that proposal? If they were not out of sympathy with it, why had they referred to the desire of the Committee as being pitiable, narrow-minded, a sham, and a fraud? If the Progressives, who had been so long in power, had thought of doing what the present Committee was doing, how proud they would have been of their achievement.

Mr. Howell J. Williams said that the proposal was an absurd one, for it was hopeless to think of enforcing anything of the kind; of course the firm would employ local men. There was no proposal to put this into the contract, and no contractor would agree to that being done.

Mr. Taylor said the whole thing was a sham and a fraud. Tottenham was London, and the people who lived there had been driven out of the inner circle by various clearances, and it was ridiculous to think of excluding such men from London work.

The Chairman put Mr. Phillimore's amendment to the vote, but no one voted in favour of it, and the amendment was declared lost. On a division, there voted for the amendment 2; against, 102.

After a long discussion it was decided, on a division, to insert a clause in the contract requiring the contractors to give a preference to London workmen for casual and unskilled labour.

After taking unopposed business, the Council adjourned.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses :—

Erection of Buildings on Land Reserved for the Continuation of Thorpe Bank-road, Uxbridge-road.

Hammersmith.—(*a*) That the resolutions of October 8, 1907, with reference to the condition with regard to the preservation of land and cancelling the deed of covenant entered into in connexion with the formation of Thorpe Bank-road, be rescinded; (*b*) That the erection of buildings on the land northward of Dunraven-road, on the approved plan, be permitted.—Agreed.

Buildings in Garratt-lane and Burntwood-lane, Wandsworth.

Wandsworth.—(*a*) That the resolution of August 30, 1907, consenting to the erection of seven buildings on the north-eastern side of Garratt-lane, Wandsworth, the erection of a one-story shop on the western flank of the westernmost building abutting upon Burntwood-lane, and the erection of porches to two cottages on the eastern side of Burntwood-lane, be rescinded; (*b*) That the Council do consent to the erection of seven buildings on the north-eastern side of Garratt-lane, Wandsworth, and to the erection of porches to two cottages on the eastern side of Burntwood-lane (Mr. H. Bignold for Mr. C. Brawn).—Consent.

Lines of Frontage and Projections.

Camberwell, North.—That the application of Mr. W. H. Woodroffe for an extension of the periods within which the erection of a block of flats, with bay windows and porches, upon the site of Nos. 41, 42, and 43, Camberwell-green, Camberwell, to abut upon D'Eynsford-road, was required to be completed, be granted.—Consent.

Dulwich.—A parochial hall on the northern side of Townley-road, Dulwich, to abut also upon the western side of Lordship-lane (Mr. W. G. King for the Estates Governors of Alleyn's College of God's Gift).—Consent.

Kensington, South.—The retention of an iron and glass covered way in front of No. 24, Holland-park, Kensington (Mr. G. N. Watts).—Consent.

Kensington, South.—A projecting hood over the entrance to a studio on the southern side of Onslow-mews, Kensington, and abutting upon Cranley-place (Mr. G. E. S. Streatfeild).—Consent.

Norwood.—That the application of Mr. S. Woodward for Mr. S. H. Pearce, for an extension of the period within which the erection of houses with shops on the western side of Norwood-road, and dwelling-houses on the northern side of Trinity-road, Norwood, was required to be completed, be granted.—Consent.

St. George, Hanover-square.—The retention of wood and glass screens partially enclosing the sides of the portico in front of No. 33, Chesham-place, St. George, Hanover-square (Messrs. Welchman & Wise for Mr. H. F. Smith).—Consent.

Wandsworth.†—A one-story shop in front of No. 115, Balham-hill, Wandsworth (Messrs. G. Brinsley & Son for Mr. R. Cooper).—Consent.

Wandsworth.—A one-story surgery building at the rear of No. 71, Magdalen-road, Wandsworth, to abut upon Ellerton-road (Messrs. Holloway Brothers).—Consent.

Wandsworth.—A church and presbytery on the north-eastern side of Ellison-road, Wandsworth (Mr. J. H. Beart-Foss for the Very Rev. Canon St. John).—Refused.

Width of Way.

City of London.—That the application of Mr. W. Stewart for an extension of the periods within which the erection of buildings on the northern side of Little Somerset-street, City, to abut also upon the eastern side of Harrow-alley, was required to be commenced and completed, be granted.—Consent.

Islington, South.—A building at the rear of No. 20, Compton-terrace, Islington, at less than the prescribed distance from the centre of the roadway of Compton-avenue (Major C. E. Dance for the Marquess of Northampton).—Refused.

Width of Way, Line of Frontage, and Construction.

Fulham.—Three signboards at No. 37, Vanstone-place, Walham-green (C. W. Browne & Co., Ltd.).—Refused.

Width of Way and Deviation from Certified Plans.

St. Pancras, South.—A deviation from the plans approved for the erection of buildings upon a site abutting upon Tottenham-court-road, Fitzroy-court, Whitfield-place and Warren-street, St. Pancras, so far as relates to (i.) the division of the building facing Tottenham-court-road into three blocks instead of seven blocks, and an increase in the depth of such buildings from front to back; (ii.) the construction of the buildings six stories in height instead of seven stories; and (iii.) the use of the first floor, with the exception of the portion at the corner of Tottenham-court-road and Warren-street, for showrooms instead of flats (Messrs. Seth Smith & Monro for Mr. C. E. B. Young).—Consent.

Whitechapel.—The re-erection of a building known as the Alma Brewery upon the western side of Spelman-street, Whitechapel, and the northern side of Booth-street (Mr. W. Stewart).—Consent.

Lines of Frontage and Construction.

Kensington, South.†—The retention of a perambulator-shed and a perambulator-hoist in the basement area of No. 20, Elvaston-place, Kensington (Mr. E. G. Stevenson for Mr. R. M. Holland).—Consent.

Space at Rear.

Hampstead.—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a house on the north-western side of Willoughby-road, Hampstead, with an irregular open space at the rear (Mr. J. D. Hunter for Mr. R. L. Fedrick).—Consent.

Formation of Streets.

Paddington.—That, at the request of Mr. H. T. Steward, the Council do permit the retention of wooden fences or barriers across Biddulph-road and Ashworth-road on the Paddington estate, Sutherland-avenue, Paddington.—Consent.

Hammersmith.—That an order be issued to Messrs. R. B. Grantham & Son, refusing to sanction the formation or laying-out of a new street for carriage traffic in continuation of Bloemfontein-road, Hammersmith, and leading to Sawley-road.—Refused.

Alteration of Building.

Limehouse.—A modification of the provisions of Part V. of the Act, so far as relates to the erection of an additional story at the rear of No. 224, Rhodeswell-road, Limehouse (Messrs. Ward & Ward for Messrs. Charrington & Co., Ltd.).—Refused.

Height of Buildings and Projections.

Holborn.—A deviation from the plans approved for the erection of buildings abutting upon a proposed street for foot traffic only to lead from Southampton-row to Vernon-place, Holborn, so far as relates to the erection of bay-windows and oriel windows abutting upon the north-eastern side of such street (Messrs. Worleys & Armstrong).—Consent.

The recommendations marked † are contrary to the views of the local authorities concerned.

"PARK-SIDE," KNIGHTSBRIDGE.—A block of residential flats, consisting of forty-six suites of rooms, with twelve shops on the ground floor, has been erected for Sir Thomas Brooke-Hitching by the Waring White Building Company, Ltd. The new building, planned and designed by Messrs. Hart & P. L. Waterhouse, stands next east to the French Embassy, at Albert Gate, and overlooks Rotten Row and Hyde Park.

Architectural Societies.

EDINBURGH ARCHITECTURAL ASSOCIATION.—Mr. Ramsey Traquair read a paper to the members of the Edinburgh Architectural Association in their rooms, on the 20th inst. In the course of his paper, which was illustrated by a series of lantern views, Mr. Traquair spoke of the importance of mediæval Greece for the historian, and of the results of the fourth crusade, and referred to the mediæval cities and castles of the Peloponnese, Monembasin, Mistra, Geraki, Passava, and Castel Tornese. He also gave a description of the tour of the British School of Archæology, and threw on the screen representations of some exhibits found amongst the ruins of classic Sparta. The later Byzantine architecture was also dealt with. A vote of thanks was conveyed to Mr. Traquair by Mr. Hippolyte J. Blanc, R.S.A., who occupied the chair.

GLASGOW PHILOSOPHICAL SOCIETY.—Mr. Alexander Gardner, President of the Architectural Section of the Royal Philosophical Society of Glasgow, delivered his presidental address on the 18th inst., his subject being "Some Notable Scottish Architects." Mr. Gardner referred first to Sir William Bruce of Kinross, who was architect in Scotland to Charles II. His chief works were Holyrood Palace, Hopetoun House, and his own mansion-house of Kinross; he also designed the first Merchants' House of Glasgow, the picturesque steeple of which still stands in the Bridgegate. To Robert and James Adam, sons of a famous architect, Edinburgh owed the Register House and the main block of its University. The brothers Adam designed furniture in character with their apartments, of singular and original merit, adapting classical forms to modern uses with a success unrivalled by any other designers of furniture in Britain. After dealing with William Starke and David Hamilton, whose work was chiefly in the West of Scotland, the lecturer said a brilliant quartet of contemporary Edinburgh men were James Gillespie Graham (1777-1855), Thomas Hamilton (1784-1858), William Burn (1789-1870), and W. H. Playfair (1790-1857). Graham rose from the position of a working tradesman to be a leading architect; Blythswood House, Brodick Castle, St. Andrew's R.C. Cathedral, Glasgow, and the beautiful Assembly Hall of the Church of Scotland were from his designs. Thomas Hamilton's best known works were the Edinburgh High School on the slopes of the Calton Hill, and the Burns Monuments at Edinburgh and Alloway. The classical Greek buildings of Playfair were dominant features in views of Modern Athens. The fame of George Meikle Kemp (1795-1844), whose humble origin and tragic end formed a romantic story, rested on his one executed work—that fairy-like structure, the Edinburgh Scott Monument.

NOTTINGHAM ARCHITECTURAL SOCIETY.—A paper entitled "Rational Building" was read by Mr. P. H. Ellis before this Society on Tuesday, the 19th inst. The author remarked that the distinction between architecture and building was one of modern origin. It was not until comparatively recent times that the notion was entertained of erecting buildings professedly with no design beyond convenience and stability. Construction, divested of its helpmate and calling itself engineering, had progressed by leaps and bounds, and produced masterpieces which called forth the admiration of all by their daring and ingenuity, but there they stopped. The one great and vitalising force in architecture was rational building, which consisted briefly in the employment of materials according to their quality and adaptability, with the idea of satisfying a want by the most simple and solid means, giving to the structure the attributes of durability and proper proportions, subject to certain rules imposed by reason and human instinct. The author then proceeded to discuss these rules and principles in their practical application, emphasising the fact that to satisfy the absolute need was always the first law observed. Architecture, being based on practical requirements, could only be true and logical as it was in accordance with and expressed these. Like mankind, architecture was emphatically progressive, and in the past progress was made by a steady development and extension of the knowledge gained by experience.

MANCHESTER SOCIETY OF ARCHITECTS. — The fourth general meeting of the Students of this Society was held at the Society's rooms on the 19th inst., the subject of the paper being "Mediæval Domestic Architecture," by Mr. Gordon Royle. Mr. P. S. Worthington occupied the chair. The lecturer first gave a description of the Norman Castles, and then went on to show the development of the great hall from the XIIth to the XVth century, explaining how the hall attained its greatest development in the XIVth century, as exemplified in Westminster Hall. During the XVth and XVIth centuries, the hall gradually declined in importance owing to the demand for increased privacy, which led to the general use of private rooms for the members of the family. Mr. Royle showed how the long gallery came into use during the reign of Elizabeth, and served as a means of communication to other rooms as well as being an extremely handsome apartment. A discussion followed.

Archæological Societies.

GLASGOW ARCHÆOLOGICAL SOCIETY. — At the opening meeting of this Society on the 21st inst. Professor Sir William M. Ramsay, Aberdeen, gave an account of recent research and investigations he had made among the ruins of an ancient, almost forgotten Byzantine city in the south-west region of the great Central Asian plain, and discussed some of the problems suggested by the city's former greatness and the present-day desolate and decaying condition of the region and its people. In leading up to his subject he made a reference to the prehistoric art of Scotland, which seemed to him never to have received justice. There was, he said, in this country, at least in the north-east regions of it, how far north he could not say, an early art of a singularly high and singularly interesting character—one of the arts of the world, one of the special kinds of art which stood out distinguished from all others. He confessed he found that it was extremely difficult to bring that art into relation with any other of the known early arts of the world. It seemed, so far as one could judge, to have arisen spontaneously in the country. It was distinctly Oriental in its analogies, and was marked off clearly from Western art—from the art of Greece, or Rome, or Europe generally. There was an Oriental feeling about it, and it opened up to them a vista of history that had still to be traced. There was a large attendance, and the lecturer received a cordial vote of thanks.

Engineering Societies.

INSTITUTE OF SANITARY ENGINEERS.—This Institute are about to remove their offices from 19, Bloomsbury-square to 120 and 122, Victoria-street, Westminster, S.W., where they will be established on and after December 16.

INSTITUTION OF CIVIL ENGINEERS.—At the ordinary meeting on Tuesday, the 26th inst., Sir William Matthews, K.C.M.G., President, in the chair, the paper read was "The Tranmere Bay Development Works," by Mr. S. H. Ellis, M.Inst.C.E. The works described comprise two graving-docks, two floating basins, launchways, engineering shops, and other equipment of a new shipbuilding yard, together with the continuation of two town sewers. The works are situated on what was tidal foreshore of the River Mersey, and the first step in their construction was the reclamation of the site. This was effected by a series of three dams:—(*a*) A timber coffer-dam, 625 ft. in length, and about 36 ft. in height above the foreshore; (*b*) a temporary concrete wall, 250 ft. in length, and 29 ft. in average height; and (*c*) a clay embankment extending between low and high water mark. The graving-docks are respectively 708 ft. and 861 ft. in effective length, and are largely cut out of the sandstone rock, with concrete walls above the surface of the rock (on one side only just above dock bottom), or where the rock was defective in character. The entrances are closed by floating ship-caissons. The outer floating basin, the entrances of which are closed by gates, is 15 acres in area, with a depth of water of 31 ft. 7 in. at high water of ordinary neap tides. The quay walls, respectively 1,000 ft., 850 ft., and 990 ft. in length (besides a frontage wall 460 ft. in length), are of concrete throughout. Some account was given of the forward movement of part of the longest wall, which is founded on sand, with bearing-piles driven down to rock. The inner basin, entered from the outer, is for shallow-draught vessels, and is 2¾ acres in area. The materials and methods of manipulating the concrete were briefly dealt with, and a description given of the Simplex system of concrete piling, largely used on these works for the column foundations of heavy engineering shops situated on made ground. The method of forming the launchways and shipbuilding slips was described, and an account given of the form of construction of the frontage wall (which is founded on concrete piers sunk through 30 ft. to 35 ft. of silt to the rock) by grabbing from the centre of (*a*) wrought-iron caissons, (*b*) hollow concrete monoliths on an iron cutting-edge.

Books.

In English Homes. Photographs by CHARLES LATHAM: Letterpress and Introduction by H. AVRAY TIPPING, M.A. Vol. II. (London; George Newnes, Ltd. New York; Charles Scribner's Sons. 1907.)

THIS folio book is practically a set of photographs of exteriors and interiors of English country mansions, chiefly of late Renaissance period (at least as far as the interior decorations are concerned); including also illustrations of three modern houses: "Clouds," by Mr. Philip Webb; "Marshcourt," by Mr. Lutyens; and "Westonbirt House," built for Mr. Holford by the late Mr. Vulliamy, architect also, as our readers will remember, of the well-known mansion called Dorchester House, in Park-lane, built for the same client. Mr. Tipping has revised or edited the letterpress descriptions to the illustrations, and also contributed an Introductory chapter. But mainly the book is a collection of illustrations; the letterpress is of little importance, and is mostly more concerned with the history of the families who owned the houses, and the alterations they had made, than with any architectural considerations.

It is, in fact, a drawing-room table book of the higher class, and as such it is a very fine publication. The object, as more fully stated on the title-page, has been to illustrate "the internal character, furniture, and adornments of some of the most notable houses of England, historically depicted from photographs specially taken." We do not quite understand in what sense they are said to be "historically depicted"; the phrase looks rather as if the title-page had been drawn up in America, an American house being one of the publishers. The selection made is an interesting one; it includes some very well-known houses, such as Hever Castle, Canons Ashby, and a few others; but it includes also a good many that are not so familiarly known, and which contain, as the plates testify, some exceedingly fine work. Though the exteriors of most of the houses are given, the main object is to give the interiors and the furniture, which are in most instances of more interest. It is curious to contrast, in such cases as Prinknash Park and some others, the plain unpretending character of the exterior with the sumptuous quality of the interior architectural features and decorations, as if the whole display of the owner's taste and wealth were confined to the interior; but this has generally been rather a characteristic of the English home, in which outside display is tacitly condemned as bad taste.

The distinction between English and French or Italian work of the XVIIth century is commented on in the Introduction, and is curiously illustrated in the sumptuous pieced-up bedstead formerly at Great Tangley, Surrey, shown on page 33. The fine and freely executed terminal figures which form, at the foot of the bed, the supporters of the canopy, and which are either of French or Italian workmanship, form a strange contrast to the stiff and naïve bas-relief figures of English work carved in the three niches at the foot of the bed. There is, however, no evidence offered as to the precise date of these; the architectural details would imply that they are Jacobean. Referring to another example, a bedstead at Rotherham, entirely of one period, is instanced as an example of the preference of quantity to quality in English woodwork of the period; every portion of it is carved elaborately, but there is, as the author truly observes, a lack of intellectualism, of the ambition to think and do finely and grandly"; and the thick bosses from which the bed-columns spring have an absolutely clumsy and elephantine appearance.

Of the three modern houses illustrated, Westonbirt (Gloucestershire), by Vulliamy, seems to have been suggested, as to its exterior treatment, by Wollaton; in the interiors pilaster orders are largely employed on the walls, in a manner that is monotonous though in a certain sense dignified; and this kind of treatment for the interiors of a dwelling goes far to rob it of homelike character; it is too much the kind of design one might expect to find in a public hall or a Municipal Council-room. In "Clouds," built by Mr. Philip Webb, the best portion illustrated is the interior of the dining-room on page 422, with its finely treated arcade before the windows, and the wall panelling with a carved frieze and dentilled capping. The exterior of the house seems to want certainty and consistency of style. By far the best of the three modern houses is Mr. Lutyens's "Marshcourt, Hampshire"; a house really interesting from its originality of style, Gothic in feeling but not merely imitative, and very picturesque in the arrangement of the windows. There is some very interesting detail in the interiors also, though the presence of the Classic order in the Hall seems not quite what one would have expected from the style of the exterior. It is, however, a house full of architectural interest.

The XIth Dynasty Temple of Deir-el-Bahari. Part I. Twenty-eighth Memoir of the Egypt Exploration Fund. (London: Offices of the Egypt Exploration Fund; 1907.)

THIS volume contains the restored plan of the XIth Dynasty temple at Deir-el-Bahari, so far as the explorations of the Fund have at present extended. It shows a square enclosure with a wall about 8 ft. thick (a considerable length of which was found *in situ*, with we presume indications of the rest), in the centre of which was the base of a pyramid, surrounded on three sides by a triple row of octagonal columns, with a double row on the fourth (north) side. Outside the enclosure was a platform with a double open colonnade of square columns running round the west, south, and east sides, and on the south side a lower platform with another double colonnade, of which more seems to have been preserved than of the upper colonnades. The remains, however, are evidently in a very ruinous state.

The interior columns are described as made of a blue-grey sandstone covered with a wash of plaster. The square columns outside, of which nearly all the bases are in position though only some fragments of the actual columns were found, were of a dark-brown sandstone.

The "pyramid" in the centre at first presented itself as a mass of rubble 60 ft. square, with an outer revetment of heavy flint boulders from the neighbourhood. It was found, however, that it aligned with the row of columns, and had a return northward at a right angle. This was originally faced with fine limestone blocks, of which only a portion at the north-west corner has been preserved, and shows that the whole block was originally about 70 ft. square. The mass is now not more than 10 ft. high in any place, the upper part having disappeared. The facing has a slight batter, and fragments were found of the angle-bead, painted yellow with black bands. Fragments were also found of a heavy cavetto cornice, which may have gone round the top of the block. It is argued by Mr. H. Hall, who writes the article on this portion of the discoveries, that this cannot have been an altar or sanctuary, or there would have been the remains of a step-way giving access to the top; and he conjectures, taking into account the

fragments of cornice, that this was the base for a small pyramid which gave to the building the appearance of a funerary monument of a type often seen depicted in the papyri of the *Book of the Dead*. The pyramid may have been built of brick. This, of course, must be to a great extent conjectural.

Among the illustrations from photographs of the actual remains is seen a view of the remains of the lower north colonnade, one square column of which is left to about 12 ft. high (taking the scale from the figure standing by it), the other remnants seem to average from 4 ft. to 6 ft. The remains have of course been largely used as a quarry in former times.

The volume is mainly the production of M. Naville, who furnishes the majority of the descriptive articles, Mr. Hall taking the specially architectural part of the subject.

Examples of Classic Ornament from Greece and Rome. Drawn from the originals by LEWIS VULLIAMY. With descriptive notes by R. PHENÈ SPIERS, F.S.A. (London; B. T. Batsford; 1907.)

THE plates in this portfolio are a selection from those published in 1825 by Lewis Vulliamy, on his return from a tour made as Travelling Student of the Royal Academy. The original work was entitled "Examples of ornamental sculpture in architecture, drawn from the originals in the years 1818-21." They were drawn on copper by Vulliamy, and the present publisher acquired the copper plates, which were in very good condition, of the examples selected for republication.

Of the twenty plates all except the last four are of Greek work of the finest type, and some of them illustrate fragments of carved work which are now lost, and have therefore a special value. The last four plates are Roman examples, though the centre design in plate 17, from a marble chair now in the church of S. Stefano Rotundo, is quite Greek in general character, and one is not surprised at the Editor's suggestion that it was probably carved by a Greek artist in Rome. The last plate, part of the scroll frieze of the Temple of the Sun, from fragments in the garden of the Colonna Palace at Rome, though it has not the purity of Greek work, is a splendid example of the sumptuous style of Roman carved ornament.

The drawings are beyond praise in their cleanness of line and fine execution, and form an admirable collection for the study of the highest class of Greek ornament.

Traders and Railways (The Traders' Case). By THOMAS WAGHORN. (London: Effingham Wilson.)

IT is not necessary to read many pages of this book to find ample justification for the sub-title; the author admittedly holds a brief for the traders, handling his case most thoroughly, and it would be no compliment to describe the work as an impartial one. From the introduction to the concluding chapter the unscrupulous and remorseless tactics of the railway companies, the wiles and evasions of their managers and advisers, the crushing expense attendant upon railway litigation and its unsatisfactory results, are all exposed and denounced in unmeasured terms.

While containing some sound suggestions and practical advice the work is largely historical, and the "constant reader" of our "Notes" will doubtless recall some of the measures and "cases" alluded to. A remark made by Mr. Lloyd-George, which is quoted by the author, quite recently furnished us with a text on one aspect of the railway problem—"In the near future we shall have to reconsider the whole question of railway rates from beginning to end." Appalling as this prospect appeared, the effect of reading Mr. Waghorn's terrible indictment—not only of the law, but of its interpretation and administration—is to induce an uncomfortable feeling of helplessness and hopelessness. One or two extracts by way of illustration will suffice. "The law professes to protect the trader; it really does little more than lure him on, by deceitful promises, to incur great expense and trouble, only to rivet the chains of oppression more tightly than before." "Every disputed point given against a railway company is contested again and again in every court and in every manner open to them; and although the companies may be defeated everywhere they continue to do the same thing, calling it by another name, precisely as they did before." This is discouraging enough, but worse remains behind. "When judges have not openly denounced the legislative provisions approved by Parliament they have not hesitated to express their extreme unwillingness to enforce them. . . . On the supposition that the merits of a case are evenly-balanced the odds are more than ten to one in favour of the defendant railway company."

There is so much in this vein that the reader of these pages may well have a vision of the zealous advocate, in full war paint, constantly before his eyes; and, possibly, an undesired effect will be produced by the time he reaches the conclusion of the whole matter. "A codifying Act, expressed in simple, every-day language, is the one remedy capable of allaying the traders' grievances. . . . With simplification of law, simplification of procedure, and alliance between traders, a more healthy system of traffic management would be introduced." The reader, having by this time become almost incurably pessimistic, reflects that if the railway companies are so complacently over-riding the present laws—the outcome of interminable and exhausting labour which fairly wore out some of our leading railway experts—they will soon contrive to drive a motor-car through any revised edition.

BOOKS RECEIVED.

HYDRAULIC RAMS. By J. Wright Clarke. Second Edition. (B. T. Batsford. 3s.)

LAND TREATMENT OF SEWAGE. By Herbert T. Scoble. (The St. Bride's Press. 5s.)

THE ARCHITECTURE OF GREECE AND ROME. By W. J. Anderson, A.R.I.B.A., and R. Phenè Spiers, F.S.A. Second Edition, revised and enlarged by R. Phenè Spiers. (B. T. Batsford. 18s.)

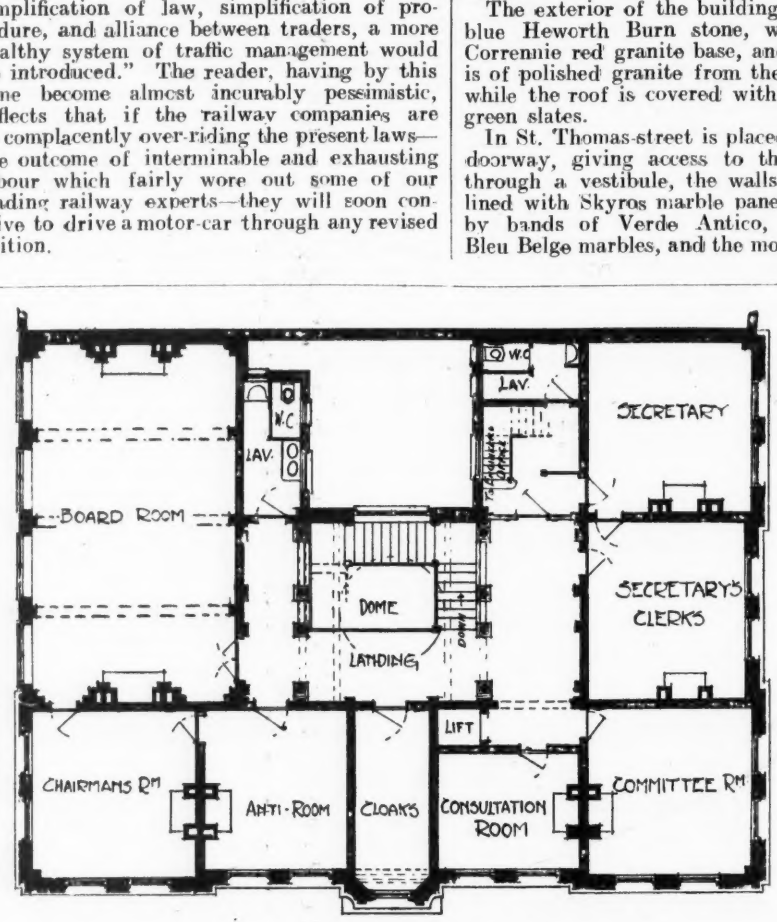
Illustrations.

RIVER WEAR COMMISSIONERS' BOARD ROOM AND OFFICES, SUNDERLAND.

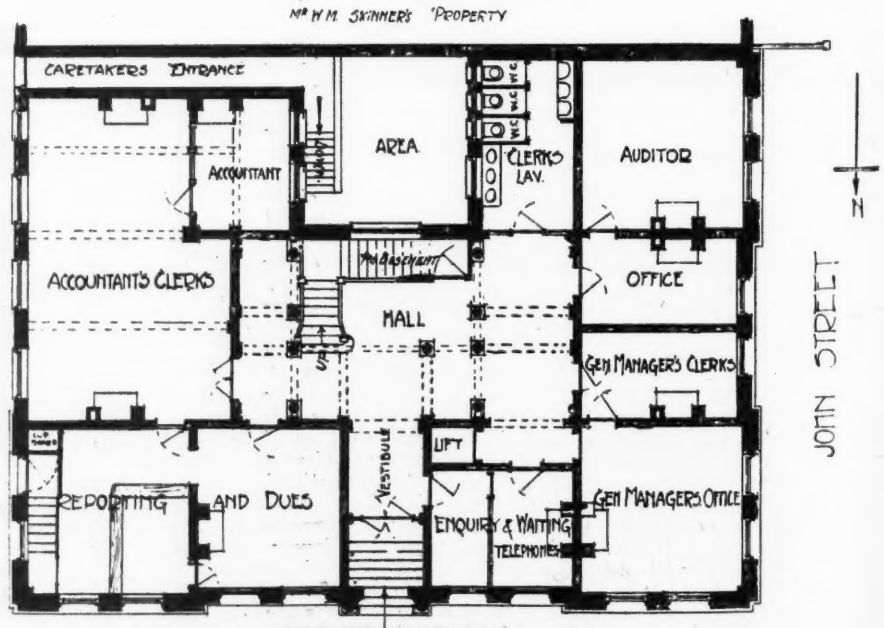
THESE premises have been erected upon the site of the old post-office at the corner of St. Thomas-street and John-street, Sunderland, with aspects north and west respectively.

The exterior of the building is faced with blue Heworth Burn stone, with rock-faced Corrennie red granite base, and the doorway is of polished granite from the same quarry, while the roof is covered with Tilberthwaite green slates.

In St. Thomas-street is placed the principal doorway, giving access to the central hall through a vestibule, the walls of which are lined with Skyros marble panels, surrounded by bands of Verde Antico, with base of Bleu Belge marbles, and the moulded capping,



FIRST FLOOR PLAN



GROUND FLOOR PLAN

ST THOMAS STREET

SCALE OF FEET. 0 10 20 30 40

River Wear Commissioners' Offices, Sunderland. Plans.

architraves, and soffits of arches are of selected alabaster; above is a barrelled and coffered fibrous plaster ceiling.

The central hall and landings give easy access to all parts of the building. The floors are fireproof and laid with marble tiles formed in black and white squares, and the wall panelling, staircase, and columns are executed in Austrian oak fumed and dull polished. A coffered fibrous plaster dome rises from the ceiling; the latter, enriched and coved, springs from an arcade of fluted Ionic columns upon pedestals, with a balustrade between, which forms a handrail to the first-floor landing. Lighting to the staircase is obtained by means of a large window, also from the glazed eye of the dome.

Accommodation in the basement is found for the caretaker, strong rooms, stores, and heating chamber. On the ground floor are situated the offices for the general manager, accountant, and their staffs. The reporting and dues department is approached by a separate public entrance on the east, and is also connected to the hall. Inquiry, telephone, and lavatory accommodation for clerks is upon this floor, the walls of the latter being finished with Diespeker's patent wall mosaic. The board room is upon the first floor, and the walls are panelled to a height of 15 ft. with Cuban mahogany; festoons of carved fruit and flowers of the same wood decorate the pilasters, and the carving over the chimneypieces at each end of the room is in lime-tree. An enriched barrelled and panelled ceiling surmounts a coved and carved cornice. Adjoining the board room are the chairman's and ante rooms, which are panelled in Austrian oak to a height of 8 ft., and on the same floor there are committee, consultation, cloak rooms and lavatories for the board, also offices for the secretary and staff and officials' conveniences. The whole of the second floor is given up to the engineer, assistant engineer, their clerks and draughtsmen.

All departments have open fires, and the entrances, landings, and lavatories are heated by radiators on the low-pressure system.

Teak is used throughout for all external windows. A lift communicates with all floors.

Mr. John Hall (Sunderland) was the architect for the structure and all internal fittings; Mr. J. W. White (of the same town) carried out the building contract, Messrs. James Garvie & Sons (Aberdeen) executed the whole of the wood panelling and carving, Messrs. J. & H. Patterson (Manchester) fixed the marble work, and the stone carving was done by Messrs. H. H. Martyn (Cheltenham), Messrs. Chatwood supplied the three strong-room doors, and the electric light fittings were manufactured by Messrs. N. & E. Spittal.

NEW BUILDINGS, SELWYN COLLEGE, CAMBRIDGE.

THESE buildings will be commenced shortly, and will form a fourth side to the quadrangle of the late Sir Arthur Blomfield, who also designed the master's lodge and the chapel.

They will consist of a dining-hall, 76 ft. by 28 ft., with "screens," a gallery, and an open oak roof. On the east side of it will be the battery, scullery, store-rooms, bursar's and steward's offices, while to the west will be the new combination-room, and six sets of tutors' and undergraduates' rooms, while the servants' hall, coal-stores, and heating-cell will occupy the basement, and men-servants' bedrooms the attics. The materials will be soft red bricks and yellow stone, with dark red tiles on the roofs, and every effort will be made to work in complete harmony with the existing College buildings.

Messrs. Grayson & Ould, of Liverpool, are the architects.

NATIONAL PRIZE DRAWINGS.—No. 7.

THIS, which is a drawing to which a bronze medal was awarded in the last National Competition of Schools of Art, is a very good example of architectural measured drawing. The architectural drawings used to be, almost invariably, the weakest element in the exhibition of students' drawings by the Science and Art Department; there are now signs of improvement in this respect.

The work is measured and drawn by Mr. John H. Taylor, and forms a good illustration of a remarkable piece of Norman architecture.

Fifty Years Ago.

FROM THE *Builder* OF NOVEMBER 28, 1857.

FALL OF HOUSES, CAMBERWELL.

THE disaster which occurred on the 14th inst. in De Crespigny-park, Camberwell, where a party-wall between two semi-detached houses, just ready for roofing, fell, and carried with it the greater part of the front and back walls of both houses, should serve as a warning, and prevent other accidents. Those who ought to know attribute the fall entirely to the recklessness with which the wall—18 in. in thickness, *honeycombed with flues*—had been carried up in haste, without a particle of iron hooping as bond to compensate for inferior workmanship. The materials of their several kinds are said to have been good. If the present weather continue, and the mode of building now pursued in several quarters we could name be persisted in, we shall have other falls before long. How some of the houses now being erected in the suburbs stand is a marvel—the mortar made with loam instead of sand, the bricks the worst of "place," and these materials, such as they are, thrown together with reckless hand, without bond of any kind. The District Surveyors, ill-supported by many of the magistrates where there is the least obscurity in the Act, are nearly powerless in the matter, but are nevertheless visited with the abuse of the public whenever disaster occurs.

Most earnestly we exhort the speculative builders of the suburbs to change their course, at any rate till the summer comes again, or life will probably be sacrificed. On several previous occasions, when we had expressed these words of caution, the ink had scarcely dried before an accident happened. We sincerely hope it may not be so now.

*** District Surveyors to-day, fortunately, cannot be described either as "powerless" or as "unsupported by the magistrature." Fifty years ago the District Surveyor was probably regarded as a novel kind of interloper who was to be snubbed where possible. He occupies a very different position now.—ED.

Correspondence.

DRY-ROT IN TIMBER, ETC.

SIR,—Your interesting article of November 23 states some conditions of growth which are not without exceptions. Many years ago I gathered much information and saw many instances of dry-rot, from which I write the followng notes.

In the Parliamentary reports on dry-rot in the Navy, instances were quoted of it in topmasts, which certainly were not in stagnant air. A remedy was found by sinking a ship in salt water for some months; but that resulted in more dampness throughout than usually occurs in sea-going vessels.

Dry-rot may be seen in apparently sound logs of timber as imported, forming a grey ring intervening between the annual rings of the tree's growth. I have heard of this defect being found thus in English timber freshly felled. I had an instance of its injurious effect in a large roof tie-beam, where a piece 6 ft. long, 12 in. wide, and about 4 in. deep, slid away from the thrust of the heel of a rafter. Dry-rot will spread from timber into brickwork; I have seen the outer wall of a chapel front crumbling dangerously for a height of 6 ft. above the doorway, where the wooden frame carried up the dry-rot from the floor.

The walls of corridors of a large hospital near here had to be reconstructed from their foundations up to the ground floor after being disintegrated by dry-rot, which apparently originated in the wooden casing of some wires or pipes buried below the concrete floor of the corridor.

As to remedies for dry-rot, a costly but generally efficient one is the substitution of a different kind of timber for that found defective. Another and cheaper remedy, though not always effective, is lime-washing with a strong mixture of fresh lime. I have used copper sulphate effectually, and also several proprietary disinfectants. But in all cases it seems necessary to carefully remove all infected timber and brickwork, and especially any building rubbish, before lime-washing or otherwise treating the whole of the exposed surfaces; and ample ventilation seems also desirable.

I hope some of your readers may give the results of any successful attempts to combat this very serious difficulty attending the use of timber, seeing that it cannot be replaced by steel or concrete for many purposes where comfort and artistic effects are required.

J. CORBETT,
Borough Engineer, Salford.

SIR,—I have read with great interest the article in this week's *Builder re* above subject matter, and it may be of interest to relate how I treated "dry rot" in Sussex. From 1902 until 1904 I was working (architecturally) for the "Chartreuse," Parkminster, Sussex. This grand monastery was built over thirty years ago by the well-known French architect, M. Normand. The walls of the monastery are of Bath stone, and are 1½ metres, or 4 ft. 10½ in., thick. These are erected on a clay soil, and no ventilation of floors has been provided under the large church and numerous chapels, etc., etc. I found upon taking up the parquet flooring in one of the chapels that all the massive oak joists had completely perished from dry rot and fungi. These, I had removed, and after having ventilating shafts cut at intervals through the stone walls to permit the air to circulate around joists and under floor, new oak joists were placed, after having been painted with hot "Carbolineum." I find this is better and cheaper than "creosoting." The under part of the parquet flooring was covered with fungi. I also had the stone foundation walls under floor treated with hot "Carbolineum." I find this treatment is the most sure and effective way of keeping the damp from walls, floors, etc. In the basement of the guest house belonging to the monastery the damp rising from the clay soil caused all timber to perish, and the walls were continually wet. Here I also painted the walls and floors with "Carbolineum," with the most satisfactory results.

HENRY H. B. SANG.

THE LONDON SCHOOL BOARD OFFICES.

SIR,—As one of your readers, I can endorse Mr. Robson's important testimony in favour of your original view, viz., that Mr. Bodley, and not Mr. Garner, was the architect of the School Board offices.

I had the honour of acting as his clerk of works during the whole time of building. I am in possession of many letters, and one of his own sketches, which I received from him during the progress of the work.

I only received one letter from Mr. Garner, respecting a lift which Mr. Bodley had chosen. I always had my instructions from Mr. Bodley, whom I looked to as my chief.

WM. NICOL.

The Student's Column.

MODERN METHODS OF USING GAS.—XX.

Gas-Engines—Conclusion.

USES OF GAS-ENGINES. — Gas-engines are now commonly called "internal combustion motors," but for the sake of brevity we shall use the shorter nomenclature. The purposes for which gas-engines are most largely used are pumping, operating dynamos for the generation of electric current, printing, driving circular saws, lathes, and other workshop appliances, and for organ-blowing.

Recent Developments in Construction.—No very radical changes in gas-engine construction have been made within the last decade, but it has been shown that there is practically no limit to the power which can be given to the engine. Gas-engines of over 2,000-h.p. are now in use. The displacement of steam-engines by gas-engines has been steadily proceeding for many years past, and there has been a gradual increase in efficiency, and decrease in the cost of the engines. Although many engines of over 1,000-h.p. have been constructed, the great majority of the engines in use are of less than 60-h.p. In large engines the quantity of water that has to be kept in circulation around the cylinder liner for cooling is very considerable. The most notable achievement in recent years in connexion with the use of gas-engines is the construction of engines which are operated by combustion of the waste gas from the blast-furnaces used for smelting iron ores.

Engines for Suction Gas.—Gas-engines for use with the low-grade gas manufactured in suction-gas plants have to be provided

with larger gas passages than those provided in engines for use with town gas, and the mixture of gas and air has to be more highly compressed. Engines which are to be fed sometimes with town gas and sometimes with suction gas should be so constructed that the necessary adjustment of the gas and air ports can readily be made. An engine with its ports adjusted for the consumption of suction gas will not work satisfactorily with town gas. When the engine is so constructed that either gas can be used, it is possible to use suction gas when only a low power is required, and town gas when a higher power is demanded.

Starting.—Engines of less than 20-b.h.p. are still most commonly started by turning the flywheel by hand. Engines of over 20-b.h.p. are sometimes started with compressed air. When the engine is about to be stopped after its first run the gas is turned off, and by a slight alteration of the valves the engine is converted into an air compressor which discharges air into a reservoir by the force of the energy stored in the still rotating flywheels. By the time the flywheels have come to rest the reservoir has become charged with air compressed to 60 lb. per square inch, and this compressed air is used to restart the engine. In other cases a hand-pump is used to force an explosive mixture of gas and air into the explosion-chamber of the engine. The explosive mixture is forced into the engine cylinder, and the displaced air escapes through a small cock at the top of the cylinder. When a sufficient number of charges of gas and air have been pumped into the cylinder the small cock is closed. The cylinder is now charged with an explosive mixture under atmospheric pressure. The pumping is then continued in order to cause compression of the charge. Explosion of the charge takes place, and the engine commences to work. The cylinder is then immediately shut off from its connexion with the starter by the closing of a valve.

Ignition.—In this country the ignition of the explosive mixture of gas and air is still commonly effected by allowing it to have contact with a tube heated to redness by a Bunsen flame. The tube is usually made of clay or porcelain, and is surrounded by a cast-iron guard. On the Continent ignition is usually effected by an electric sparking device, and this method of igniting the mixture is gradually coming into use in this country, especially for engines supplied with suction gas.

Compression of Charge.—The explosive charge of gas and air in a gas-engine supplied with town gas is usually compressed to about 80 lb. per square inch before ignition. With low-grade gases, such as suction gas, the charge is usually compressed to a much greater extent. Compression to 120 lb. per square inch is common, and, in some engines, the compression is as great as 180 lb. per square inch. In engines used with blast-furnace gas the compression has in some cases been increased to 350 lb. per square inch. The advantages of an increase in the compression of the charge in the case of low-grade gases are that an increased power can be obtained without increasing the size of the cylinder, and that the speed of combustion is accelerated. With coal-gas the combustion of the explosive mixture is sufficiently rapid under the lower pressure.

Gas Consumption.—As a rough general rule it may be assumed that an engine properly designed to consume the gas with which it is fed will require 10,000 B.Th.U. for every brake-horse-power-hour when working at full load. With a light load more heat will be expended per brake-horse-power because the mechanical losses are practically the same with a light load as with a full load. The rule allowing 10,000 B.Th.U. for every brake-horse-power per hour may be accepted for nearly every description of industrial gas. The various rates of consumption calculated from the calorific values in accordance with this rule will be seen in the following table. The figures approximate closely to those obtained in practice :—

Gas.	Net B.Th.U. per c. foot of Gas.	Gas Consumed per hour per b.h.p.
Natural gas (U.S.A.)	881	11·3 c. feet.
Coal-gas	540	18·5 ,,
Simple water gas	280	35·7 ,,
Pressure producer-gas	142	70·4 ,,
Suction producer-gas	118	84·7 ,,
Blast furnace-gas	115	87·0 ,,

Small gas-engines are slightly less efficient than large engines. The rates of gas consumption with engines of different sizes when fed with coal-gas of 700 B.Th.U. net per cubic foot are stated by W. A. Tookey to be as follows :—

Size of Engine.	Consumption per hour per b.h.p. Full Load.	Half Load.
Up to 12 b.h.p.	17 to 20 c. ft.	20 to 25 c. ft.
12 to 20 b.h.p.	16 to 17 ,,	19 to 20 ,,
20 to 60 b.h.p.	14½ to 16 ,,	18½ to 19 ,,

Conclusion.

In the foregoing articles some indication has been given of the multifarious uses of town gas and commercial gases of a similar character; and the principles upon which the successful application of gas to various purposes are founded have been briefly discussed. In England gas is probably more largely used as a source of light than any other illuminant, and, judging by the progress made during the last two decades, it seems destined to soon take first rank also as a source of heat. The general advance in the prices of coal and other commodities has prevented that reduction in the price of gas which those interested in gas supply hoped to witness; but in many districts it has been found possible by obtaining a higher price for coke, and by devising more economical methods of manufacture, to prevent any substantial increase in the charge for gas. Since the prices of house coal and factory coal have everywhere increased much more largely than has the price of gas, the latter retains its favourable position as a heating agent. This country contains a store of coal which cannot be exhausted during the present century, and when that store does become depleted combustible gas can be made from peat, from oil, and from many other carbonaceous materials. Furthermore, if the present century witnesses reductions in freightage charges equal to those made during the XIXth century, the importation of coal into Newcastle from distant lands may become a common occurrence. Great changes may occur in the composition of the gas distributed to householders, in the pressure under which it is supplied, and in the methods of using it; but the demand for gas is likely to increase for many years to come. The only prospect of a reduced consumption of gas is to be seen in the possibility of the discovery of more economical methods of using it. The change from lighting with flat flames to incandescent gas lighting was accompanied by a large reduction in the quantity of gas required to illuminate any given area, and it would be rash to assert that new methods of lighting and heating, resulting in substantial economy of gas, will not be introduced in the future.

TRIBUNAL OF APPEAL UNDER THE LONDON BUILDING ACT.

THE Tribunal of Appeal under the London Buildings Acts, 1894 to 1905, sat on Friday last week to consider an appeal by Mr. W. H. Forster, M.P., against an order of the London County Council.

Mr. S. G. Lushington, in opening the case, said that the appeal was by Mr. Forster, who was a builder on an estate at Catford, under sect. 19 of the Building Act, 1894, against a refusal by the London County Council to approve of plans for laying out four new streets. The application was made on September 6, 1907, and the Council refused it on October 15. The reason given for the refusal was founded on subsect. 4 of sect. 9 of the Act, which provided that no new streets should be allowed unless they afforded direct communication between two streets formed and laid out for carriage traffic. All the roads on the Forster Estate were 50 ft. wide, and the proposed new roads were to be of the same width. The point to be decided was as to the actual meaning of the words "direct communication" in the section. He (Mr. Lushington) submitted that it did not mean an absolute straight line—some latitude in deviation must be allowable. He contended that the plans of all the four streets in question provided in each case for reasonable communication with two other streets.

Mr. Hudson (the Chairman) remarked that the members of the Tribunal had visited the estate, and one of the thoroughfares into which the proposed new roads would communicate—Inchmere-road—was worse than a ploughed field, and if they were asked to find as a fact whether that particular road was "formally laid out for carriage traffic," they should certainly say that it was not.

Mr. Lushington said he understood that Inchmere-road was at present just a space between two rows of houses that were being built.

The Chairman : Most of the houses are occupied.

Mr. Lushington said he supposed the road was in the condition that most roads were when building operations were just finished, and before the roadway had been properly made up. If the only question was the condition of the surface, his client was quite willing to make up the road before he constructed any of the new roads that would lead into it.

The Chairman : Are the London County Council willing to allow this appeal to stand over until that is done ?

Mr. Ryland Adkins, M.P., for the London County Council, said his contention was that what Mr. Lushington now offered to do ought to have been done before the application was made to the Council. When they were asked to consent to these roads, one of which the Chairman had just described, and the other was a lane 18ft. wide, they said it could not be contended that they were roads "formally laid out for carriage traffic." The object of the Council was to give the public a communication with the adjoining Corbett Estate, and the plans did not provide for that. The state of the particular road to which the Chairman had referred was far from being the only point at issue.

Mr. Lushington said the objection which he had to giving a communication with the Corbett Estate was that all the roads on the Forster Estate were 50 ft. wide and the rental of the houses ran up to 50*l.* per annum. In the case of the Corbett Estate the roads were narrower and the houses were cheaper. He was quite willing to give a communication further up the road, where the property of the Corbett Estate was of a better class.

After some further discussion, it was agreed between the parties that the Tribunal should make suggestions to see whether it was possible to bring them together.

After deliberating in private, the Chairman said the view of the Tribunal was that one of the communications asked for by the Council was not necessary. They sympathised with the objection of Mr. Forster in not wishing to effect direct communication with the Corbett Estate, and they thought that the continuation of Hazlebank-road would meet all that was wanted in that connexion, as in all probability the Forster Estate would continue that line of street in a parallel fashion. They wished to express their strong disapproval of the laxity of the local authorities for allowing the streets to be in the condition in which they were at the present time. They would adjourn the case generally to see whether the parties could agree, and the question of costs could be discussed later.

Mr. Adkins said he wished to lay great stress upon the importance of the prolongation of Muirhead-road into the proposed new road, so as to give a north and south communication.

Mr. E. Van Putten, the Borough Surveyor of Lewisham, promised to bring the remarks of the Chairman in reference to the unsatisfactory condition of the roads before his Council at their next meeting.

LOAD TESTS OF "ARMOCRETE" FLOORS.

SUBSEQUENT to the publication of our account of the test conducted by the Armoured Tubular Flooring Company upon two experimental floors at Kentish Town, we have received from the British Fire Prevention Committee a report giving particulars of load tests on three floors of similar construction.

The floors, designated A, B, and C, were of the dimensions and construction stated below :—

Floors A and C.—Overall length, 15 ft. 6 in.; clear span, 14 ft. Width across ribs, 2 ft. 1 in.; width at top, 2 ft. 6½ in. These floors were built up of three reinforced concrete ribs, spaced 11 in. apart, connected by breeze-concrete tubes, 8 in. wide by 9½ in. deep by 8 in. long, and finished by a 2¼-in. layer of gravel-concrete making up the total thickness to 11¾ in. The tension reinforcement of each rib consisted of a corrugated bar 1¾ in. high by ⅝ in. thick.

Floor B.—Overall length, 29 ft. 8 in.; clear span, 28 ft. Width across ribs, 2 ft. 3¾ in.; width at top, 2 ft. 9 in. This floor was built up of three reinforced concrete ribs, spaced 11 in. apart, connected by breeze-concrete tubes, 8½ in. wide by 13½ in. deep by 8 in. long, and finished by a layer of gravel-concrete 4¾ in. thick making the total thickness to 18½ in. The tension reinforcement of each rib consists of two corrugated bars 2½ in. high by ⅜ in. thick.

The floors were supported on low brick walls each covered by a York stone template 3½ in. thick. In all the tests the loading consisted of concrete blocks measuring 18 in. by 12 in. by 9 in., the blocks being stacked in such manner as to avoid arching.

The setting time was approximately six months, or about six times that allowed in the case of the floors tested at Kentish Town. This is an important point, and in comparing the two sets of results it should be remembered that the strength of concrete at six months is usually 1·33 times the strength of the same material at one month.

Unfortunately, no exact comparison is possible, for in neither case was any inquiry made into the compressive strength of the concrete, the tensile strength of the reinforcement, the coefficients of elasticity of the materials, or the adhesion between them. If the Committee conduct any future tests of the same kind they certainly ought to make a point of obtaining all data necessary to give scientific value to the results of their work.

The following notes are taken from the complete records presented in the report :—

Tests of Floor A.—Date of completion, December 18, 1906. On January 27-30, the superload of 5 cwt. per square foot was placed on the floor, causing the maximum deflection of 0·3 in. After removal of the load on January 30 the floor returned to its original form.

On June 7 and 8, when the floor was at the age of 24·5 weeks, it was loaded with concrete blocks until, at the superload of 6·51 cwt. per square foot, the mean deflection at the middle of the span was 0·72 in., and gradually-increasing cracks showed on both sides.

When the superload reached 9·98 cwt. per square foot, the mean deflection was 3·66 in., and shear cracks appeared at both ends ; and at the load of 12·37 cwt. per square foot, the floor suddenly collapsed by breaking at the middle.

Floor B.—On June 27, 1907, when the floor was at the age of 27·3 weeks, it was loaded with concrete blocks up to the superload of 5·14 cwt. per square foot, the mean deflection being 0·65 in.

On July 17 the load was increased to 7·65 cwt. per square foot, the deflection being 1·24 in. On that day shear cracks appeared at one end of the floor and various small vertical cracks on both sides near the middle.

On July 25, without any increase of the load, the deflection increased to 3·66 in., and on August 21 the deflection under the same load was 3·95 in.

After gradual removal of the loading between September 5 and 7 the permanent deflection was found to be 3·03 in.

Floor C.—On June 27, when the floor was at the age of 27·3 weeks, it was loaded with concrete blocks until at the superload of 6·56 cwt. per square foot it suddenly collapsed, the mean deflection being 0·26 in.

One striking feature brought out by the breaking loads of the two identical floors A and C is the remarkable difference in ultimate strength thereby demonstrated. If these floors were designed for the safe load of 1½ cwt. per square foot, the factors of safety would be 8 for Floor A, and 4 for Floor C. Therefore it is very evident that in this type of construction careful workmanship is of the utmost importance.

For the purpose of comparing the strength of these two floors with that of the two floors tested at Kentish Town, we state the respective moments of resistance in terms of the ultimate bending moment per foot net width, as given by the usual rule, $wl^2 \div 8$:—

Floor A, 41,500 inch-pounds ; Floor C, 20,450 inch-pounds ; Floor A (Kentish Town), 17,710 inch-pounds ; Floor B (Kentish Town), 19,050 inch-pounds.

It must not be forgotten that the reinforcement in the Kentish Town floors was of greater sectional area than in the floors tested by the British Fire Prevention Committee, but on the other hand the depth of the latter was 1¼ in. greater, the concrete was probably about one-third stronger owing to its superior age, and there would naturally be a better bond between the concrete and the reinforcing bars.

A point worthy of notice in connexion with both series of tests was the startling suddenness characterising the collapse of the floors. Except in the case of Floors A and B tested by the British Fire Prevention Committee, no warning was given of impending failure.

Floor B was not actually broken under the load of 7·65 cwt. per square foot, but was evidently in a critical state. If designed for the safe load of 1½ cwt. per square foot this floor would give nearly 7 as the factor of safety.

The chief lesson of the tests to which we now refer is that floors of this type must be designed with an ample factor of safety to provide for divergencies of workmanship which cannot be gauged beforehand, but which, as shown by the tests of Floors A and C, have a very important bearing upon the resistance of the construction.

METROPOLITAN ASYLUMS BOARD.

AT the fortnightly meeting of the Metropolitan Asylums Board on Saturday last week the following matters were dealt with :—

Eastern Hospital.—On the recommendation of the Finance Committee it was agreed to apply to the Local Government Board for authority to incur expenditure of 2,340*l.* on the erection of additional staff accommodation at the Eastern Hospital.

Nuconomiser.—The Works Committee stated that the Engineer reported that the installation of the Nuconomiser system of heating had now been completed at the Brook Hospital by Messrs. Ashwell & Nesbit, at a cost of 5,238*l.* 18s. 11d. As to the result obtained, the Engineer pointed out that the contractors estimated to obtain a reduction of 1,800 tons per annum on the amount of steam coal consumed at the hospital, as compared with previous years (the previous consumption having been mutually agreed at 5,816 tons per annum), and stated that this rate of economy was now being slightly exceeded, and there was no reason why it should not be maintained.

South-Eastern Hospital Reconstruction.—The same Committee reported having received from the Accountant the final accounts in connexion with Messrs. Godson & Son's contract for the reconstruction of this hospital. The amount of Messrs. Godson's contract was 109,947*l.* 14s., which included a provisional sum for general contingencies of 5,000*l.* The variations on the contract, including 1,300*l.* for extra foundations, amounted to a net extra of 3,022*l.* 3s. 6d., so that the actual value of the works included in the contract was 107,969*l.* 17s. 6d., or 1,977*l.* 16s. 6d. less than the contract amount. To this sum of 107,969*l.* 17s. 6d. must be added the sum of 4,975*l.* 5s. 3d. for additional works ordered and executed, while the contract was in progress, so that the total sum payable to the contractors would amount to 112,945*l.* 2s. 9d.

Leavesden Asylum.—The Asylums Committee recommended that three blocks at this asylum should be converted into infirmaries, the estimated cost of which was 1,300*l.*—Agreed.

Northern Hospital.—To provide extra accommodation for the male staff at this hospital certain structural alterations were suggested which, it is estimated, will cost 1,100*l.*, and it was further recommended that additional lavatory accommodation should be provided at an estimated cost of 520*l.*—It was agreed to carry out the work subject to the assent of the Local Government Board.

Obituary.

MR. LONGMORE.—The death in last week is announced of Mr. William Alexander Longmore, of Bridge-chambers, Hoe-street, Walthamstow, and Great Alie-street, London, E., architect and surveyor, in his eighty-third year. Mr. Longmore was elected a Fellow of the Royal Institute of British Architects in 1892. During twenty years he was Architect to the School Board for Walthamstow ; he resigned that appointment in 1900. He made the plans and designs for the Board Schools in Queen's-road ; Blackhorse-road, for 1,500 children ; Wood-street, on a site of four acres, for 1,700 children and planned upon the "one floor" principle, 1898 ; and Addison-road for girls ; and for alterations and improvements of the Higham Hill and other schools for the Board. He was the architect for the additions, including the technical workshops, ten years ago, to the Sir George Monox Boys' School, Walthamstow, founded in 1542 ; for the rebuilding of several houses and shops in Leman-street, Whitechapel ; the enlargement and improvement of St. Mark's Schools, Royal Mint-street, E. ; a large block of shops and office premises in Wood-street and Wyatt's-lane for the Walthamstow Parochial Charities Trustees ; villa residences in Chingford ; and many houses, etc., in that locality. Mr. Longmore was the son of a lady, *née* Reynolds, who, with her sister the wife of Thomas Hood, and her brother, were members of the family circle in Little Britain with whom Keats was intimate. He was one of the oldest members of our auxiliary forces, having joined the Honourable Artillery Company in 1851, that is, nine years before the establishment of the Volunteer rifle corps in Great Britain.

MR. G. R. CRICKMAY.—We recently briefly announced the decease of Mr. George Rackstraw Crickmay, F.R.I.B.A., F.S.I., of Weymouth and London, who was born in December, 1830, and died on the 10th of this month. The interment took place at Putney Vale Cemetery, and was attended by many friends. The deceased was Diocesan Surveyor for the Archdeaconry of Dorset from 1872 to 1892, during which time he visited 196 benefices; he was also Surveyor to the Weymouth estate of Sir Frederick Johnstone, Bart., since 1872 ; Architect and Surveyor to the Corps of Commissionaires ; Manager and Surveyor of the Weymouth Waterworks for fifty years ; he was a freeman of the City of London, and a member of the Glass Sellers' Company, of which he was master a few years ago ; he was a member of St. Stephen's Club, Westminster, and the Surveyors' Club ; also of the Dorset Field Club. He was also a Freemason, being the oldest Provincial Senior Grand Warden in Dorset. In connexion with his friend Mr. J. Williams Bell, he revived the meeting of Dorset men in London by a dinner at the Hôtel Métropole, presided over by Viscount Portman, the outcome of which was the Society of Dorset Men in London, now firmly established. We printed a list of some of his architectural works in our issue for November 16, but he was responsible for many others, and he also laid out a great number of estates at Weymouth, Dorchester, Swanage, Oatlands Park, Worthing, Bush Hill Park, Enfield, etc.

General Building News.

CHURCH RESTORATION, ACLE.—The second portion of the restoration of St. Edmund's Parish Church, Acle, has been completed, under the supervision of Mr. F. J. Green, of Norwich, by Mr. A. E. Daniels, of Acle. The lead has been recast by Messrs. Gibson & Son, of Norwich. The sub-contracts for bricklayer's stonemason's, and plumber's work were carried out by Mr. W. Jermy, Mr. Walter Utting, and Mr. J. Griffen. The entire contract, including extras for new windows and the outside doors, is about 460*l.*

CHURCH RESTORATION, BRADWELL.—The work of restoring Bradwell Church has now been completed and the building reopened. The walls have been securely bonded together and strengthened, the stonework restored, decayed timber replaced by new, the lead recast and relaid, and the bells rehung upon new frames. Broseley tiles have been laid upon the nave and chancel roofs, and the old slates upon the aisle roofs, and new rain-water drains have been laid. A new heating-chamber and vestry have been erected, and a low-pressure system of heating by hot water has been installed throughout the church. The general contractors were Messrs. Batchelor & Son, of Stalham, the masonry being executed by Mr. Rowland G. Youngs, of Gorleston ; the leadwork by Mr. J. T. Gibson, of Norwich ; the hot-water heating by Messrs. Barnes & Pye, of Norwich ; and the bells rehung by Messrs. Day & Son, of Eye, all being under the supervision of the architects, Messrs. Lacey & Upcher, of Norwich.

BOARD SCHOOL, BUCKHAVEN, N.B.—The Wemyss School Board are erecting a new school in the village of Denbeath. The building covers nearly half an acre of land, and is the design of Mr. G. Charles Campbell, architect, East Wemyss. There are twenty-two classrooms, including chemical and physical laboratories, needlework, cookery, and laundry rooms, games room, and a central hall.

BAKER-STREET SCHOOL, MARYLEBONE.—On November 22, was formally opened a pair of wrought-iron gates which have been erected at the main entrance into the yard of the school, formerly styled the Baker-street Church of England High School for Girls. The gates constitute a memorial to the late Canon Francis J. Holland, founder of the school, and were designed by Mr. Henry T. Hare. On the gates is an inscribed bronze tablet.

SECONDARY SCHOOL, DUNOON.—A new Secondary School has been opened in Dunoon. The building is of three stories. The ground floor contains chemical and physical laboratories and a manual work-room. On the first floor there are four classrooms, rector's-room, and board-room, while the upper floor contains two classrooms, a cookery-room, art-room, and rooms for the lady teachers and masters. The building was designed by Mr. Wm. Fraser, formerly of Dunoon, now living in Canada, who was succeeded in the early part of this year by Messrs. Boston, Menzies, & Morton, architects, Dunoon.

GRAMMAR SCHOOL, WIRKSWORTH.—The foundation-stone of the new Grammar School for Wirksworth was recently laid by the Right Hon. Victor Cavendish, M.P. The new buildings are arranged with a wide corridor running the whole length of the building, and separated from the two entrance halls by swing doors, thus giving access to the various class-rooms and affording efficient means of communication. On the north side of the building, and opening off the corridor, is situated the science laboratory, providing accommodation for twenty-five students, and at either end of the corridors, and entered from the vestibules, are arranged the cloak-rooms, with a recess in each for lavatories. The school is to be heated by hot water pipes and ventilating radiators, in addition to open fireplaces. The buildings externally will have a plinth of stone from local quarries. The walls above the plinth will be faced with Loughborough red sandstocks, while the arches and bands will be in purple bricks. The roofs are to be covered with Welsh slates. The contractor is Mr. G. W. Walker, of Wirksworth, who is carrying out the buildings from plans prepared by Mr. George H. Widdows, County Architect. The work is estimated to cost 4,500*l.*

PROPOSED ENLARGEMENT OF THE CUMBERLAND INFIRMARY.—At a special meeting of the Governors of this infirmary recently held at the Carlisle Town Hall to consider a scheme for enlarging and improving the institution, it was announced that the Committee of Management had called to their assistance Mr. J. J. Burnet, A.R.S.A., and, after considering various schemes submitted by him, have adopted plans which he has prepared, and which provide for the erection of a

new west pavilion, containing on the ground floor a new ward for twelve men, and on the first floor a new children's ward with twenty-four cots. It is also proposed to build a new kitchen block; to remodel the laundry and fit it with modern steam-worked machinery; to reorganise the heating and hot-water service; to add one story on the west side of the nurses' home; to enlarge the out-patient department; erect new ophthalmic and X-ray departments; to provide better facilities for the treatment of casualties; and to make much-needed structural alterations in the central block, including improved accommodation for the domestic servants. The estimated minimum cost of these extensions and alterations is 20,000*l.*, exclusive of architects' fees, etc.

BONDED WAREHOUSE, DUNDEE.—The bonded warehouse of Messrs. James Watson & Co., Ltd., which was burnt down, has been rebuilt on the old site in Seagate. The buildings throughout, except the outside walls, are of reinforced concrete constructed on the Hennebique system. The architects were Messrs. Johnston & Baxter, Dundee, and the contractors, for ferro-concrete, Messrs. Thorburn & Son, Edinburgh; and for brickwork, Mr. Alexander Fraser, Kirkcaldy.

POST OFFICE, KILMARNOCK.—The new Post Office at Kilmarnock has just been opened. The building, which is three stories in height, has been erected at the corner of John Finnie-street and Nelson-street, and covers an area of ground comprising 831 super. yds. The architect was Mr. W. T. Oldrieve, Principal of H.M. Office of Works in Scotland, and the building contract was carried out by Messrs. William Shaw & Co., Ltd., Glasgow. The estimated cost was about 11,000*l.*

Stained Glass & Decoration.

MORWENSTOW CHURCH.—In December last year the chancel screen in this church, containing some of the carving of the original rood screen was restored. The sanctuary has now been brought 4 ft. further west, and the tiles replaced with Devon marble. The granite kerb-stones have been removed, and the approach to the altar is by three steps of Sicilian marble, in the symbolic colours. The reredos and altar was designed by Mr. E. Sedding, and carved by the Misses Pinwill, of Plymouth.

Sanitary and Engineering News.

THE COMBINED DRAINAGE BILL.—With regard to the Bill dealing with combined drainage which has been framed by the committee of a conference of representatives of the City and Metropolitan Borough Councils, the Public Health Committee of Camberwell Borough Council reported last week that they approved of the draft Bill, with the substitution of the following clause defining a "drain" for the one at present in the Bill:—"In the construction of the Metropolis Management Acts, 1855 to 1890, and the Acts amending the same the word "drain" shall be deemed to apply to and include any drains of and used for the drainage of one building only or premises within the same curtilage and made merely for the purpose of communicating with a cesspool or other like receptacle for drainage or with a sewer into which the drainage of two or more buildings or premises occupied by different persons is conveyed, and shall also include any drain for draining any group or block of houses by a combined operation pursuant to the order or direction or with the sanction or approval of the Metropolitan Commissioners of Sewers, or under the order of any vestry or district board, and shall also include any drain which has not been approved as a sewer either by the Metropolitan Commissioners of Sewers or by the Metropolitan Board of Works or the London County Council."

WATER FOR ROAD-WATERING.—The Metropolitan Water Board has sent a circular letter to the twenty-eight Metropolitan Borough Councils, stating that before Lady Day next provision must be made for taking the supply of water for road-watering purposes by meter; suggesting that the various Borough Surveyors should make early arrangements with the Board's District Engineer as to the proposed position of the meters, and offering to make the necessary alterations in the pipes, etc., the cost of which must be repaid by the Councils concerned.

RURAL DISTRICT OF TREGARON.—Dr. E. P. Manby's Report to the Local Government Board upon the sanitary circumstances and administration of the rural district of Tregaron, in the county of Cardigan (No. 284 of Medical Inspectors' Reports), states that for a number of years the need for a public water supply to the town of Tregaron has been known to the Board, and much correspondence, at one and another time, has passed between the Board and the Tregaron Rural District Council on the subject. The inadequacy of the salaries paid by this Council to its Medical Officer of Health and to its Inspector of Nuisances has also formed the subject of not a little correspondence between the Board and the Council. Lastly, in June, 1906, the Council appointed as Inspector of Nuisances an applicant who possessed no sanitary experience and no qualifying certificate, although there were several other candidates for the post who held such certificate. The Board refused to sanction this appointment, and the district was noted for inspection by one of the Board's Medical Staff. In the course of his Report Dr. Manby states that in the houses many sleeping-rooms are without fireplaces or other permanent means of ventilation; windows are often of small size, and sometimes they are not constructed to open. Houses have been closed from time to time as unfit for human habitation, and there appears to be, at the moment, occasion for further action in this direction. The sewers, which are unventilated, are now somewhat out of date, and the tanks into which they discharge act merely as settling tanks. No filtering medium is used, and the sewage passes directly from the tanks to the Brenig stream. A few water-closets discharge into the Tregaron sewers, but at this place, as elsewhere throughout the district, privies or pail-closets are the customary receptacles for excretal filth. In 1904 the Medical Officer of Health reported that about 25 per cent. of the houses in the rural parts of the district were unprovided with closet accommodation. At Llangeitho are three privies situated over a dry water-course, and the deposits of excretal filth below them were freely exposed to view. The fact that the Medical Officer of Health and the Inspector of Nuisances had allowed such conditions to persist would seem to show that the systematic inspections of the district which are referred to in the annual reports of the Medical Officer cannot be of a thorough character. The water supply of Tregaron town is altogether unsatisfactory, and has formed the subject of reports, discussion, and official correspondence for many years. The only public supply is a small dip well, which fails in summer. There are some twenty pump-wells in Tregaron, none of them apparently more than about 30 ft. deep, and several of them quite shallow. In 1900 the District Council employed an engineer to report upon the comparative cost and suitability of several schemes of water supply for Tregaron. In 1905 tenders were invited for the execution of the scheme most approved by the Council and their Engineer. This was the bringing of water from some springs at Pencefn, about three miles from Tregaron. The lowest tender received was 2,700*l.*, and the Council were prepared to carry out the work at this cost. The ratepayers, however, protested so forcibly that the scheme was hastily dropped! Alternative proposals for obtaining a public water supply at Tregaron by sinking additional wells are strongly opposed by the Medical Officer of Health and others because the nature of the subsoil is believed to negative the chance of obtaining a thoroughly good drinking-water there. The Medical Officer informed me that when his own and other wells in Tregaron are cleaned out, as they require to be periodically, a large deposit of offensive material is found, not unlike that accumulating in street gulleys. The Report adds that the existence of a satisfactory water supply is of vital importance to the town, and if the present unsatisfactory water conditions remain, not only may the place lose the few visitors it attracts, but it may, with introduction of specific infection in one or other manner, find itself saddled with the cost of a serious outbreak of typhoid fever.

MANHOLE CHANNELS.—The following paragraph is taken from the last monthly report of Dr. Wynter Blyth, the Medical Officer of the Borough of St. Marylebone:—

"The architect of an important public building designed and had constructed two manhole chambers with channels made of Portland cement instead of the usual glazed channels. The writer declined to pass the same considering that the said channels were not in accordance with the by-laws. The architect argued that they were equally efficient and, on the Public Health Committee confirming the action of their officer, appealed to the London County Council. The appeal was dismissed. The case therefore must be taken as a precedent, and it will not be prudent for builders or architects in this district to attempt to make such channels in cement."

PORT OF HARWICH.—A Parliamentary Bill has been prepared for the incorporation of a company with a view to the construction of new docks and sea-walls at Harwich. The undertaking comprises a reclamation of the foreshore between Stour-street on the east, and the Dovercourt and Parkeston railway-stations on the west; the dredging and deepening of the estuary of the Stour; the building of two sea-walls or embankments in extension eastwards of the present northern embankment of the Great Eastern Railway as far as the flood-bank opposite the gasworks; the construction of a dock having an area of about 25 acres, together with two graving-docks at the rear of the new sea-wall; and a diversion of the Dovercourt Dock river.

Foreign.

GERMANY.—The International Motor Exhibition, Berlin, will be held from December 5 to 22, in the Exhibition Hall of the Zoological Gardens.——The Norner Fountain, erected in the Karlsplatz, Munich, was unveiled on September 5. It is the work of Professor Hubert Netzer, of Munich, and cost 50,000 francs.——On October 18 the new Queen Louisa Bridge over the Memel, at Tilsit, was opened. In 1875 an iron bridge had been built for train and road traffic, but as the former increased a second bridge was required, and was in course of erection from December, 1904 to October, 1907. The project was designed by Messrs. Kersjes, Tincauzer, & Anderson. The bridge is of iron and composed of six spans, one of these being a bascule. The cost was 1,733,000 marks. The sculptor, Stephen Walter, modelled the relief portrait of Queen Louisa, which decorates one arch leading to the bridge.——One hundred and two designs were submitted in the competition for a swimming-bath for Halle. Two prizes of 2,000 marks each were awarded to Messrs. Jürgensen & Bachmann, of Charlottenburg, and Heinrich Rust, of Leipzig.

AUSTRIA.—The new School of Commerce, Vienna, is nearing completion. Its architect, Professor Julius Deininger, is to be congratulated on the impressive grandeur of its exterior. Two other important buildings are also in course of erection—the Palace of Industry and the addition to the museum.——The scheme for laying out the Central Cemetery of Vienna, drawn up by Messrs. Milius & Bluntschli, is being gradually carried out. The latest addition to the buildings is the mausoleum church, flanked by arcades leading to columbaria, the work of Max Hegele, of Vienna. The building is chiefly of brick, concrete and ferro-concrete on the exterior, with dome and bell towers copper roofed. The crypt beneath the church is designed to hold over 800 coffins, while the columbaria contain 344 niches.——A sepulchral monument has lately been erected in Schönbach, his birthplace, to the savant and politician, Wenzel Lustkandl. The monument, the work of the Viennese sculptor, J. Lax, is a heroic-sized bust in Laaser marble, on a pedestal, flanked with laurel wreaths.——On the 20th inst. the monument to Morre, poet and politician, was unveiled in Graz public gardens. A fine forged railing surrounds the massive granite base, which supports the bust, modelled by Professor Brandstetter.

SWITZERLAND.—By agreement between the representatives of the Government, the railway company and the Canton Uri, the water-power of the Reuss between Urnerloch and Amsteg is to be used for driving the electric railway on the St. Gothard line. The Canton leases the water for fifty years for a sum of 200,000 kronen and a yearly water-rate of 53,000 kronen, reserving 7,000-h.p. for its own industrial purposes, and stipulating that towns shall be lighted at a certain price.

HOLLAND.—Extensive repairs have been and are still being carried out in Rotterdam Harbour. Until recently the nature of the boggy river bed does not seem to have been sufficiently taken into account, and as fast as the wharves were erected, fissures developed in the masonry or piles gave way, and stretches of wall 60 metres in length crashed down. In 1881 the company which undertook the construction of Rotterdam Harbour failed, and the Municipality took over, for 8 million kronen, the works that had cost the company four times that sum. On the left bank, where piles are still used to carry the wharves, American pitch-pine is substituted for the usual pile. These are driven into a foundation of sand which is formed by excavating the boggy ground to a depth of 9·5 metres and filling up the excavation with sand, firm ground being only reached at a depth of 16-17 metres. The wharf walls are built of cement concrete faced with basalt and paved with granite, the concrete being laid in blocks of 30 ton weight each. The construction is slow and costly, though it is hoped durable, the wharf working out at 3,100 kronen per metre for ships drawing 8·5 metres. On the right bank of the Maas, which is all sand, a cheaper and more rapid method of construction is being adopted. Piles are discarded for a foundation of ferro-cement caissons, which rise to the normal water level, where the wharf walls proper begin. Each caisson is lengthwise divided into ten and laterally into two sections, the foremost ones being filled with concrete and the rear ones with sand. The base measures 9·6 metres. By using ferro-cement caissons, it is possible to build the wharf in lengths of 320 metres, whereas with piles only 3 metres could be built at one time.

AMERICA.—The British Commercial Agent in the United States (Mr. E. Seymour Bell) reports that attention has lately been called in both the technical and the daily press of that country to a new process by which concrete is said to be made practically waterproof. The

method of doing this, which appears to be both simple and effective, consists in adding a small amount of ordinary clay to the cement; it is claimed that this not only renders the concrete impervious to water, but also strengthens it. Ordinary concrete is porous, and vast sums have been expended from time to time in the endeavour to make it waterproof. Now that reinforced concrete is being so largely used it is evident, Mr. Bell observes, that any practical method of preventing water reaching the steel rods embedded in the cement would be of the greatest value. The *Engineering News* (New York) publishes a paper by the Chemist to the Board to the American Society of Civil Engineers giving the result of an investigation of the subject of waterproofing cement that has been carried on by the New York Board of Water Supply in their effort to perfect the materials and methods of construction in the immense new aqueduct for that city. The journal in question may be seen by those interested on application at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.—*Board of Trade Journal.*

CAPE COLONY.—A proposal has been adopted by the Council of Cape Town for the construction of a railway to the top of Table Mountain, the concession to be given to an outside body or public company to undertake the same, either with or without the right of providing a hotel. Alternative tenders will be invited for (*a*) the construction of the railway, (*b*) the provision of the hotel, or (*c*) the right both to construct the railway and to provide a hotel in connexion therewith. The concession will be granted for a term of twenty-five years, with the option reserved to the Council of the right to purchase at the expiration of that period.—*Board of Trade Journal.*

TURKEY.—The Bulgarian Ministry of Public Education announces that eight competitors entered for the International competition for a University for Sophia. The first prize of 10,000 francs was awarded to M. J. Breason, of Paris; the second prize of 7,000 francs to Messrs. Garçin & Bizet, of Geneva, and the third prize of 3,000 francs to M. le Grand, of Paris.

ARGENTINE REPUBLIC.—The time limit for sending in plans for a Technical University, Buenos Ayres, has been extended by three months. Plans to be sent in by April 1, 1908, to the Argentine Embassy, Berlin, or by May 1, 1908, to the Minister of Public Education, Buenos Ayres.

SIAMESE TEAK TRADE.—According to the annual report of Mr. Acting-Consul Crosby, just received at the British Foreign Office, the quantity of teak exported from Bangkok during 1906 showed a falling-off as against 1905 (the record year) of 4,560 tons. Though the value of the export for 1906 showed a slight sterling increase as against 1905 a comparison of the totals in local currency indicates a decrease in 1906 of 1,286,443 ticals:—

Quantity Exported.

Year.	Tons.	Value. £
1904	77,531	560,174
1905	101,397	817,396
1906	96,837	819,647

The output for 1906 constitutes a record, however, for all previous years, 1905 excepted, and exceeds the five years' average by 29,345 tons, and 338,036*l.* value respectively. To the figures included in the above table must be added a total of 74,494 bundles (about 621 tons) of teak shingles exported. The quantity of teak shipped to the United Kingdom in 1906 was 6,270 tons. During the season 116,966 logs were despatched from Paknampho to Bangkok, nearly 88 per cent. of this total being sent down by British firms. Prices ruling in the London market for converted teak during 1906 were: For squares (according to size, etc., landed terms), from 12*l.* to 18*l.* per load; planks (according to specification, landed terms), from 13*l.* 10s. to 18*l.* 5s.; deck planks (according to specification, landed terms), 23*l.* 10s. to 27*l.* 10s. per load. It is, Mr. Acting-Consul Crosby remarks, an interesting question as to how far the Siam teak trade, in common with that of other countries, is likely to be affected in future by increasing export of this timber from Java. Java teak, though said to compare unfavourably with that of Burma and Siam in the matter of lengths and texture, appears to be gaining an established footing in the United Kingdom, and it is stated by an informant that though the figures available regarding the export of Java teak in recent years are vague, the safe conclusion may be drawn from them that the export is increasing by leaps and bounds, and that the supplies will admit of the export being multiplied three or four times as the demand for the wood becomes more established. An equally important consideration from the point of view of the Siam teak exporter is the action which, it is rumoured, the Government of Burma contemplate taking to relax certain of the restrictions hitherto placed on lessees of their forests, and more particularly to extend the period of leases from six to fifteen years. The increased facilities for extracting timber which will result from such action, if taken, may have the effect of placing forest lessees in Burma in a favourable position as compared with those in Siam, unless Siamese Forest Conservancy regulations are altered *pari passu* with those of Burma. According to a statement supplied by a local teak merchant the year 1906 was characterised by a further advance in the price of rough logs in Bangkok, the price reaching 21 pikat. The reason for this advance is to be found in the fact that very little sound timber, suitable for European conversion, is being brought forward from the forests, and native buyers have consequently had to pay such prices as might be asked for timber suitable for that purpose. But towards the end of the year prices showed a tendency to fall off, and there is little likelihood of such prices being maintained, seeing that they represent considerably above the parity of what can be paid for European timber on the basis of European market values. The export to London during 1906 of teak logs and planks represented 11,736 loads, against deliveries of 10,970 loads, but a large proportion of the total export represented timber of inferior quality and specification quite unsuitable for the purposes for which teak is more generally required. The continued falling-off in exports of good quality is one of the most noticeable facts, since, notwithstanding the continued advance in home values, very little timber of European quality, such as buyers had been hitherto accustomed to, has been attracted to European markets, shippers having apparently contented themselves with shipping whatever they had available.

Miscellaneous.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. A. N. Bromley, architect, Prudential-buildings, Nottingham, has taken into partnership his managing assistant, Mr. H. G. Watkins, and the practice will be carried on under the title of "Bromley & Watkins" at the above address, and also at 6, South-square, Gray's Inn, London, W.C.——Messrs. Pemberton, Arber, & Co., of Gray's Inn-passage, Holborn, the proprietors of the "Sesame" doors patent, have appointed Messrs. W. & F. Brown & Co., cabinet-makers, Eastgate-row, Chester, as agents for the sale of the "Sesame" doors, in the town of Chester and surrounding district; and Messrs. John Taylor & Sons, 110, Princes-street, Edinburgh, as agents for Edinburgh and the district. ——Messrs. Andrew Brown & Co., 110, Cannon-street, London, have been appointed the London agents for Messrs. Urquhart, Lindsay, & Co., Ltd., Blackness Foundry, Dundee, makers of machine-moulded wheels, machine-cut gearing, etc.

ARCHITECTURAL SKETCHES IN PEN AND INK.—At the Modern Gallery in Bond-street there is opened, on Friday this week, a collection of pen-and-ink sketches by Mr. J. Raffles Davison of architectural subjects in Holland, Brittany, and elsewhere. We need say nothing to recommend such an exhibition to the notice of architects. Mr. Davison's talent as an architectural draughtsman and sketcher is known probably to all our readers. He has made a style of his own in black and white, and has been employed for many years in producing, besides his own innumerable sketches, elaborate perspective drawings of the designs of many eminent architects. We hope the architectural profession will be largely represented at his exhibition.

IRELAND'S ECCLESIASTICAL RUINS.—The Commissioners of Public Works in Ireland in their annual report, recently issued, make reference to the ruins of several ancient churches under their care. They point out that the ruins of the "Seven Churches" of Clonmacnois are situated on the Shannon, in King's County, nearly in the centre of Ireland. A monastery, or religious city, was founded here in A.D. 545-548, which rose to great importance, though its foundation was almost accidental, and its founder gave it no fostering care. St. Kièran, "Mac an t saor," "son of the carpenter," as he was named from his father's occupation, had settled as recluse on Inis Ainghin (or Hare Island) in Loughrea, and conceived the idea of founding a little wooden church and cell lower down the Shannon at a lonely spot. While engaged on the work he was found by a fugitive, Prince Dermot, who aided him to set the first posts of the church there, earning his blessing and a prophecy of coming honour. Soon afterwards Dermot was elected King of Ireland, and endowed the establishment. The place grew in fame and learning, and many churches and villages of huts were crowded round Kièran's cell. It suffered often from plunderers and destroyers, both Norse and Irish, having been ravaged six times between 719 and 1012, and burned at least ten times between 719 and 1082 and twenty-six times from 841 to 1204. The Norse King Turgesis, in his attempt to break up the Irish Church in 845, enthroned his wife Ota on the altar in the church of Clonmacnois, whence she gave her oracles. It was plundered by the subjects of King Donough O'Brien in 1042, but he punished the culprits] and made amends to the monks. The Normans did violence to it several times about the year 1200. Omitting mere sites and foundations there remain two round towers, three crosses of large size and elaborate sculpture, eight churches, a castle, two holy wells, and some 200 inscribed tombstones and fragments. The churches are: (1) the cathedral; (2 and 3] the conjointed churches of Temple Hurpain and Temple Doolin; (4) Temple Ri or Melaghlins Church; (5) Aglishbeg or Temple Kièran; (6) Temple Conor; (7) Temple Finghin or Finian; (8) the Nuns' Church. The sites of former churches are: (9) Temple Killen; (10) Temple Kelly; (11) Temple Ganly; (12) the Bishop's Chapel. There was also (13) another church near the castle.

EXTENSION OF PUBLIC OFFICES.—The Commissioners of Works and Public Buildings give notice of their intention to apply in the next session of Parliament for an Act to authorise them, for the purposes of or in connexion with the extension of public offices in the City of Westminster, to acquire by compulsory purchase or otherwise certain lands, houses, buildings, streets, roads, and premises. These include in the parish of St. Margaret, Westminster, certain lands, houses, etc., on the north side of Great George-street, westward of and including the building owned and occupied by the Institution of Civil Engineers, and on the south side Nos. 1 to 6; on the west and east sides of Delahay-street and in Chapel-place, on the east side of Prince's-street, in Prince's-mews; and No. 5, Little George-street. The proposed Act will also authorise the Commissioners to stop up and discontinue as public thoroughfares Charles-street and Downing-street and Treasury-passage, and to stop up and discontinue as public thoroughfares and to acquire the site of Delahay-street, Prince's-mews, and Boar's Head-yard. It will also authorise the Commissioners to stop up and discontinue as a public thoroughfare a portion of Great Scotland-yard, in the parish of St. Martin-in-the Fields, and provide for the widening of Great George-street and Prince's-street. Further, it will authorise the Commissioners to enter into agreements with the Council of the Institution of Civil Engineers as to the re-erection of the building of that institution on a site to be provided by the Commissioners. The Act will also authorise the Commissioners to acquire, for the purpose of the extension of the Patent Office, by compulsory purchase or otherwise certain lands, houses, etc., in the parish of St. Andrew, Holborn Above the Bars, and St. George the Martyr and the parish of St. Andrew, Holborn

NEW ENTRANCE TO THE GROUNDS OF WINDSOR CASTLE.—The new entrance to the Royal demesne from the Old Windsor-road has now been completed. The pair of wrought iron gates which have been erected bear the Royal monogram, E.R. VII., and are hung to stone pillars. The two main pillars are surmounted by two heavy copper lamps, supported on wrought iron brackets, on either side of which are smaller pillars, attached to which are two hand gates to match the larger ones. The work has been designed by Mr. A. Y. Nutt, M.V.O., and the wrought iron work has been made by Messrs. Wellman Bros. & Co., of Windsor.

BISHOP RIDDING MEMORIAL, SOUTHWELL MINSTER.—A memorial of George Ridding, first Bishop of the diocese of Southwell, was recently unveiled in Southwell Cathedral. The memorial takes the form of a monument in bronze upon a pedestal of English alabaster, placed in the easternmost arch of the choir. The late Bishop is represented, clad in his episcopal robe, in a kneeling pose and with his hands uplifted in an attitude of prayer before a small priedieu. The monument is the work of Mr. F. W. Pomeroy, A.R.A. The alabaster pedestal was designed by Mr. W. D. Caröe, architect to the Ecclesiastical Commissioners, and executed by Mr. Nathaniel Hitch, of London.

BOROUGH COUNCILS AND THE WATER BOARD.—At the meeting on Tuesday of the East Ham Town Council the Engineer reported that a Conference of Engineers of the following Councils had been held as to the proposed agreement for the reinstatement of trenches opened by the Metropolitan Water Board:—West Ham, East Ham, Leyton, Walthamstow, Ilford, Barking, Woodford, and Wanstead. The first clause of the proposed agreement reads as follows:—"The Town Council shall permanently fill in all trenches opened by the Board, and shall make good the pavements and surfaces of roads within twenty-four hours from receipt of notice that trench has been temporarily filled up." The Conference proposes that the following be substituted therefor:—"The Water Board shall permanently fill in the ground of all trenches, and on completion of such filling in, the Board shall give the Council three days' notice (Saturdays, Sundays, and public holidays being considered *dies non*), and the Council shall, at cost of Water Board, make good pavement or surface of such trenches." The second clause as proposed by the Metropolitan Water Board has been agreed to by the Conference. It runs as follows:

—"The Board will pay to the Council, for the services so rendered, the amounts set out in schedule." The third clause as proposed by the Metropolitan Water Board reads:—"The Council to agree to indemnify the Board from all actions and claims, loss, etc., etc., sustained or incurred by any person consequent upon any negligence of the Council in carrying out their part of the contract." The Conference thinks the best way to meet this unavoidable liability and contingent risk would be to insure all claims under this clause.

EARTHQUAKES AND FIRE INSURANCE.—According to the correspondent of the *Times*, one of the test cases tried in Jamaica relating to the liability of the insurance companies in connexion with the fires and the earthquake has resulted in a verdict by the jury for the assured, but a stay of execution was granted. According to the cablegram, most of the damage was attributed to one central fire, which had its origin shortly before the earthquake, but the cause of the fire is not stated. As we pointed out last week, a case dealing with this question is now pending in the courts in this country.

CHURCH BUILDING SOCIETY.—The Incorporated Society for Promoting the Enlargement, Building, and Repairing of Churches and Chapels held its usual monthly meeting (being the first for the present Session) on Thursday, the 21st inst., at the Society's house, 7, Dean's-yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz.: Building new churches at Dartford, Christ Church, Kent, 100*l.* for the first portion; Four Oaks, All Saints, near Sutton Coldfield, 75*l.* for the first portion; Aldershot, S. Augustine, Hants, 130*l.* for the first portion, in lieu of a former grant of 100*l.*; and Plumstead, S. Michael and All Angels, Kent, 275*l.* in lieu of a former grant of 200*l.*; towards rebuilding the churches at Harpenden, S. John the Baptist, Herts, 125*l.*, and Rowley Regis, S. Giles, near Birmingham, 130*l.* in lieu of a former grant of 105*l.*; and towards enlarging or otherwise improving the accommodation in the churches at Birmingham, S. Patrick, 50*l.*; Garlinge, S. James, near Westgate-on-Sea, Kent, 15*l.*; Kessingland, S. Edmund, near Lowestoft, 10*l.*; Llanfihangel Cwmdu, S. Michael Brecons, 80*l.*; Road Hill, Christ Church, near Bath, 10*l.*, and Ratcliff, S. James, Middlesex, 50*l.* in lieu of a former grant of 40*l.* Grants were also made from the Special Mission Buildings Fund towards building mission churches at Hampden Park, near Eastbourne, 50*l.*; Headstone, S. George, near Hatch End, Middlesex, 25*l.* and Shottonden, near Canterbury, 15*l.* The following grants were also paid for works completed:—Sellinge, S. Mary, near Hythe, Kent, 15*l.*; Highweek, S. Mary, near Newton Abbot, 100*l.* on account of a grant of 130*l.*; Ashwell Thorpe, All Saints, near Norwich, 10*l.*; Dalton-le-Dale, S. Andrew, near Sunderland, 35*l.*; Stonebroom, S. Peter, Derbyshire, 40*l.*; Nuthurst, S. Andrew, near Horsham, 15*l.*; Piddington, S. John the Baptist, near Northampton, 20*l.*; South Beddington, S. Michael and All Angels, Surrey, 200*l.*; Onecote, S. Luke, Staffs, 20*l.*; Cardiff, S. Dyfrig, 250*l.*, being balance of a grant of 450*l.*; Milford Haven, S. Catherine, 110*l.*; Port Tennant, S. Stephen, near Swansea, 170*l.*; Roker and Fulwell, S. Andrew, near Sunderland, 200*l.*; Streatham, S. Margaret, Surrey, 150*l.*, making in all 350*l.*; Greenside, S. John, Co. Durham, 55*l.*; Liscard, S. Mary, Cheshire, 20*l.*; Woodburn, All Saints, Northumberland, 75*l.*; Llandingat, S. Dingat, Carmarthenshire, 60*l.*; Askham, S. Nicholas, Notts, 25*l.*; Jameston, Pembs., 10*l.*; Clacton-on-Sea, S. James, 45*l.*; Tunstall, S. Aidan, Staffs., 40*l.*; Basingstoke, Hants, 20*l.*; Llangranog, S. David, Cardiganshire, 20*l.*; Werrington, S. Philip, near Stoke-on-Trent, 35*l.*; and Fochriw, near Cardiff, 45*l.* In addition to this the sum of 332*l.* was paid towards the repairs of twenty-eight churches from trust funds held by the society. At this meeting, the resignation of the secretary, the Rev. W. B. L. Hopkins, was accepted on his preferment by the Governing Body of Gonville and Caius College, Cambridge, to the Rectory of Lavenham, in Suffolk, and Mr. Joseph Monday, the chief clerk, was appointed his successor.

ARCHITECTURAL ASSOCIATION MUSICAL SOCIETY.—This Society will produce at the Gaiety Restaurant at the end of February their second musical play, entitled, "Metope Mania," written by the "Purple Patch." The dates will be Wednesday, Thursday, and Friday, February 26, 27, and 28. The prices of tickets will be as follows:—Wednesday, 26th, and Thursday, 27th (ladies' nights), reserved 5s., unreserved 2s. 6d.; Friday, 28th (the Students' Smoking Concert), 2s. 6d. A portion of the proceeds will again be set apart for the Architects' Benevolent Society. Tickets will be obtainable from the hon. secretaries of the Architectural Association Musical Society, 18, Tufton-street, S.W.

HISTORICAL PORTRAITS, OXFORD.—A volume to be published by the Clarendon Press is being prepared upon the large number of historical portraits belonging to the University and the Bodleian, the colleges, and the Corporation of the City of Oxford, of which many have been exhibited during the last three years. The biographical part and the editing of the book are entrusted to Mrs. R. L. Poole. Mr. W. Roberts is engaged upon an examination and descriptive account of the pictures, and the catalogue will be based upon the method followed by Mr. C. F. Bell, of the Ashmolean Museum, for the exhibitions in 1904-6.

OPEN SPACES AND PUBLIC PARKS.—A meeting was held at Burslem on November 21 in favour of the proposed federation into one city of the six Potteries towns—Hanley, Stoke-on-Trent, Longton, Fenton, Tunstall, and Burslem. In the course of his speech the Duke of Sutherland, who presided over the meeting, announced his intention to give Trentham Park as a place of recreation and resort to the new city in the event of the federation being accomplished. The Duke's recent offer of Trentham Hall to the Staffordshire County Council as an institution for technical and advanced education, has been declined mainly on account of the expense which would be incurred in altering the mansion for that purpose. Holland altered the early XVIIIth century house which Sir Charles Barry greatly enlarged and improved; L. Brown laid most of the grounds, and Barry the gardens.——The Tottenham Urban District Council have under consideration a scheme for the conversion of a tract of 25 acres on the left bank of the Lea Cut, adjoining Tottenham Marshes, into a recreation-ground.——A movement is in progress for preserving Coldfall Wood, near Finchley, which belongs to the Ecclesiastical Commissioners, from being purchased for building purposes. The land, a remnant of the Middlesex Forest, extends over some 120 acres, lying between Tatterdown-lane on the western slopes of Muswell Hill and the Great North-road, near East Finchley, and presents many features of sylvan beauty, being thickly wooded, mostly with oak-trees. It was formerly open to the public; under a recent arrangement, the privilege of entry by payment is granted to about 100 subscribers, and to the residents around whose gardens abut upon the wood.——The Ilford Urban District Council have purchased for 1,800*l.*, nearly 3 acres of land in Uphall-road for a recreation-ground for Loxford Ward. The cost of fencing, levelling, and otherwise laying-out the ground is estimated at about 400*l.*

SALE OF BOOKS.—At the dispersal in Sotheby's rooms on Friday, November 22, of Mr. W. H. Spottiswoode's library the following works were sold: T. Sheraton's "Cabinet Maker and Upholsterer's Drawing Book," 1793, in three parts, 17*l.* 10*s.* (Maggs); Hasted's "History and Topographical Survey of the County of Kent," 1778-99, with many hundred inserted views, 48*l.* (J. Bumpus); W. Daniell and R. Ayton's "Voyage Round Great Britain," 1814-25, eight volumes, 51*l.* (Bain), and the "Liber Cronicarum cum Figuris et Imaginibus," Nuremberg, 1493, with woodcuts by Wolgemuth and Pleydenwurff, 35*l.* (Bain). Messrs. Sotheby have also sold at auction copies of J. Pine's "Tapestry Hangings of the House of Lords," 1739, 12*l.* (Young); the original issues of Christopher Saxon's Engraved Maps of England and Wales, 1573-79, 51*l.* (Quaritch); and Sir R. C. Hoare's "Ancient and Modern Wiltshire," 1812-19, with the "Modern Wiltshire," both on large paper, 35*l.* (W. Daniell).

BIRMINGHAM MASTER BUILDERS' ASSOCIATION.—The annual meeting of this Association was held at the Acorn Hotel, Birmingham, on the 21st inst. Mr. John B. Whitehouse (President) occupied the chair. In moving the adoption of the report, the Chairman said that they had been hoping that the trade would improve, but he thought no one who had had any experience of it would say this year had shown any improvement upon last. If it had not been for municipal enterprise the state of the building trade in Birmingham would have been deplorable. He was pleased to say their relations with their operatives continued to be of a peaceful character, no notices having been given and none received. With regard to the alteration of rules, however, he did not think the masters ought to mind receiving a deputation from the men with a view to securing uniformity of working hours and other improvements. A short time ago a resolution was brought forward in the City Council with regard to the "fair wages clause." They had been told through the Press that this clause applied chiefly to stores. They knew there was a fair wages clause in regard to their own contracts. That, however, was perfectly legitimate, and they were quite in harmony with it because it placed everyone on a satisfactory basis for tendering for public work. But if the clause was going to be applied to stores, how did they know that it was not going to be applied further with regard to the building trade? Referring to the Workmen's Compensation Act, Mr. Whitehouse said that, as the result of this legislation, the majority of them had had to pay higher premiums to the insurance companies. They had endeavoured to get collective insurance, but the insurance offices were either too busy or too reluctant to quote rates until the last moment, when there was no time to go into the matter. Officers for the ensuing year were elected as follows:—President, Mr. F. G. Whittall; vice-president, Mr. J. J. Moffat; treasurer, Mr. George Twigg; auditors, Messrs. J. S. Surman and Ralph Webb; secretary, Mr. Ernest J. Bigwood. A committee were also appointed. Votes of thanks to the officers and to the Chairman brought the meeting to a close. In the evening the members met at dinner at the Acorn Hotel, Mr. F. G. Whittall presiding.—Councillor Tonks proposed: "Success to the Association and the Trade of the City," and Mr. Whittall responded. Mr. J. J. Moffat proposed, "The Architects and Surveyors," and spoke of the kindly relations which exist in Birmingham between architects and surveyors and the builders. In responding on behalf of the architects, Mr. J. L. Ball said that what was needed at present was a more thorough and practical method of training the young men. The condition of architectural education in Birmingham at the present time was deplorable. There was no system about it. Their association intended to go in for thorough reform.—Mr. Christopher Silk responded on behalf of the surveyors.—Mr. A. Smith proposed "Kindred Associations," and the toast was replied to by Messrs. J. Dallow and F. W. Amphlet.

PROPOSED STREET IMPROVEMENTS, MANSFIELD.—Mr. E. Dudley, F.S.I., an inspector of the Local Government Board, recently held an inquiry at the Mansfield Town Hall into an application by the Town Council to borrow sums amounting to 2,905*l.* for the purchase of certain property in Church-street and Clumber-street, for purposes of street improvement. In the course of the inquiry, Mr. R. F. Vallance, the Borough Surveyor, gave particulars as to the property which it was proposed to purchase.

GLASGOW ECCLESIOLOGICAL SOCIETY.—The Ecclesiological Society met on the 13th inst., in the hall of St. Oswald's Church, Rev. Professor Cooper, D.D., in the chair. A paper was read by the Rev. W. Burnet, B.D., of Restalrig Church, on "The Collegiate Church of Restalrig." Restalrig, now in the parish of South Leith, is a place of great historical interest. St. Triduana died there in 510, and her sacred well, now known by the name of St. Margaret's, was a great place of pilgrimage in mediæval times. The image, shrine, and chapel of St. Triduana probably occupied the site of the present chapter-house. Later came a parish church, which in 1487 was erected by the sovereign James III. into a collegiate church. Further endowments were added by James IV. and James V., till its final establishment consisted of a dean and eight prebendaries, with choirboys—for music entered largely into its foundation. It was dedicated to "The Holy and Undivided Trinity and the Blessed Virgin Mary," and it is thought by some that several notices of the Chapel Royal at that period refer to Restalrig rather than to Holyrood. It suffered greatly at the Reformation, when the parish was transferred to South Leith. The chapter-house, which was long in a ruinous condition, is at present being restored by the Earl of Moray.

Legal.

ANCIENT LIGHTS AND THE PRESCRIPTION ACT:

JUDGMENT OF THE COURT OF APPEAL.

IN the Court of Appeal, consisting of the Master of the Rolls and Lords Justices Moulton and Farwell, on the 27th inst., a considered judgment was delivered in the case of Heyman *v.* Van der Bergh and others, on the plaintiff's appeal from a judgment of Mr. Justice Parker in the Chancery Division.

The material facts of the case were these:—Mrs. Heyman, the plaintiff, is the freeholder of a cowshed situated at the rear of certain houses in Harris-street, Camberwell, the shed containing eight windows looking south. This shed was erected in 1877 exactly as it stood in 1906, when the action was commenced, and the access and use of light to its windows had, since 1877, been actually enjoyed without any interruption within the meaning of sect. 3 of the Prescription Act, 1832. In 1898 the cowshed was in the tenancy of a Mr. Cox, and the defendants, who owned the land and premises on the south side of the shed, instructed Mr. Wilson, their architect and surveyor, to obstruct the windows. Mr. Wilson caused the windows of the cowshed to be accordingly obstructed, but Mr. Cox, although it was said he did not believe that an easement of light to the cowshed windows had been acquired, removed the obstruction. Subsequently, Mr. Cox and Mr. Wilson had an interview, when the latter told the former that he must re-erect the obstruction unless he received from Mr. Cox some document preserving the defendants' rights. On January 18, 1899, Mr. Cox, through his manager, Mr. Barton, without

reference to the plaintiff, wrote the following letter to Mr. Wilson: "I will give you 1s. per annum for the use of the eight lights you have boarded up in my cowshed." That letter Mr. Wilson had stamped as an agreement. It was not until June 5, 1903, that the 1s. a year was demanded from Mr. Cox, but Mr. Cox never paid it. In July, 1906, the defendants, being desirous of building, obstructed the windows again by the erection of hoardings. The plaintiff then commenced the action for an injunction to restrain the defendants from building so as to obstruct her windows, and so as to cause a nuisance to her, the plaintiff alleging that the free access of light and use of the windows had been enjoyed without interruption for twenty years and upwards prior to the issue of the writ. The defendants denied that the windows were ancient lights, or that the access of light and air had been enjoyed with them for twenty years prior to the issue of the writ, except that the obstruction had temporarily been removed, pursuant to Mr. Cox's acknowledgment. Mr. Justice Parker held that, in the circumstances, the plaintiff had not acquired a right to the access of light to the windows under the Prescription Act, and dismissed the action. Hence the present appeal of the plaintiff.

The arguments on the appeal concluded on the 18th inst., and were reported in last week's issue of the *Builder*.

Mr. Buckmaster, K.C., and Mr. Coldridge appeared for the appellant; and Mr. Mark Romer, K.C., and Mr. Martelli for the respondents on the appeal.

The Master of the Rolls, in giving judgment, said the appeal was by the plaintiff from a judgment of Mr. Justice Parker, who had held that the plaintiff had not established her right to the access of light to certain windows in the cowshed. In his view the plaintiff's case must stand or fall as a claim under the Prescription Act. Having stated the facts as reported, his lordship said that no action was brought by the plaintiff to establish her right to the light until July, 1906, when the present action was commenced. At the end of 1898 the windows of the cowshed were for a short time obstructed by the defendants, and he thought it was clear from the evidence and documents in the case that the access of light to the windows in question over the defendant's land was enjoyed by consent or agreement expressly made or given for that purpose in writing. It was true that that consent to pay for the use of the lights was not by the freeholder of the cowshed but by the then tenant in occupation who, it was said, at that time believed that an easement of light had not been acquired in respect of the windows of the cowshed owing to a temporary obstruction of them in 1896. His lordship, having referred to the material sections of the Prescription Act, and the various legal decisions bearing on the point, said he thought Mr. Justice Parker in his judgment had correctly dealt with the law on the matter, and that he (the Master of the Rolls) would not be justified in saying anything further than that in his opinion the appeal must be dismissed with costs.

The Lords Justices delivered judgment to the same effect.

CASE UNDER THE NEW WORKMEN'S COMPENSATION ACT.

IN the Court of Appeal, before the Master of the Rolls and Lords Justices Moulton and Farwell, on the 27th inst., the case of Bargewell *v.* Daniel was heard on the appeal of the respondent, the employer, from the award of the County Court judge of Swansea sitting as arbitrator under the provisions of the Workmen's Compensation Act, 1906.

Counsel for the appellant stated that the only question on the appeal was whether the applicant for compensation was a workman. The County Court judge had found that he was, and had awarded him compensation. His (counsel's) contention was that the applicant was not a workman, that he was not included in the definition section, and was excluded from it as he was not working under a contract of service, but as an independent contractor. The County Court judge had held that he was a casual labourer, but was employed for the purposes of the employer's trade or business. When the accident happened the applicant was limewashing a house belonging to the respondent, Mrs. Daniel, in Neath, when he fell from a ladder and broke a rib, incapacitating him from work. The County Court judge had found that the respondent was carrying on a trade or business because she was doing something in the nature of a house-agent's business. There was, he said, no evidence to support that finding.

In the result their lordships, after hearing counsel in support of the County Court judge's award on behalf of the applicant, held that there was no evidence to support the learned County Court judge's finding that the respondent was carrying on any business in which the applicant was employed.

The appeal was accordingly allowed with costs.

REPAIRING CONTRACTS AND THE WORKMEN'S COMPENSATION ACT.

THE case of Brown *v.* Pryer came before the Court of Appeal, consisting of the Master of the Rolls and Lords Justices Moulton and Farwell, on the 26th inst., on the appeal of the respondent from the award of the County Court judge at Cheltenham sitting as arbitrator under the provisions of the Workmen's Compensation Acts, 1897 and 1906.

Mr. Cranstown, in opening the appeal, said that the whole question to be decided was whether the learned County Court judge was right in coming to the conclusion on the written contract which was placed before him that Mr. Pryer was the "undertaker" within the meaning of the Act in regard to the repair of a particular cottage which he owned.

Mr. Pryer was a butcher by trade, and he owned a small cottage which was upwards of 30 ft. high. He was desirous of having some repairs done to the cottage, and he entered into an agreement with one Alfred Brown (the brother of the applicant for compensation) to do the work for him. According to the appellant's case, Henry Brown, the applicant, was in the employment of Alfred Brown, and of Alfred Brown alone. The appellant was simply the owner of the cottage, and, desiring the repairs to be done, he went to Alfred Brown and asked him to undertake them. By the agreement, the workmen were to be paid by Alfred Brown, and the appellant's case was that he had nothing whatever to do with the person injured. The written agreement upon which the learned County Court judge based his decision was in these terms:—"I, Alfred Brown, hereby agree to do the cottage work for 15*l.*, to find labour and tools, you (appellant) to find material." The County Court judge said that that was a joint contract, and whether the applicant was in the employment of Alfred Brown or not was immaterial. He held, in effect, that that document showed the appellant undertook to repair the cottage, and therefore he was the "undertaker" within the meaning of the Act. There was no suggestion that the appellant interfered with the work at all. The applicant was under the control of Alfred Brown, as also the other workmen working in the cottage, and they were all paid by Alfred Brown. In the course of his employment the applicant received an injury by falling from a ladder, and in respect of that he claimed compensation under the Act. He (counsel) contended that the learned County Court judge had misdirected himself in holding that the appellant was an "undertaker" within the meaning of sect. 7 of the Act of 1897.

Mr. Sturge, on behalf of the applicant, contended that the learned County Court judge, having found as a fact that the appellant was an "undertaker" within the meaning of the section, no appeal could be brought from that decision.

Lord Justice Farwell: Did the learned County Court judge find that the appellant was an "undertaker" on the ground that there was a contract?

Mr. Sturge said that the County Court judge found as a fact that the appellant was an "undertaker" quite apart from the question of the contract.

After some further discussion, the Master of the Rolls, in giving judgment, said he thought the case was perfectly clear. Mr. Sturge could not say more than he had done on behalf of his client. The document which had been read was the commonest form of agreement made by a landowner, one of the terms being that he should find the material. That did not in any way make him an "undertaker" within the meaning of the Act. He thought the learned County Court judge had gone wrong in this respect, and that the appeal must be allowed on the ground that the appellant was not an "undertaker" within the meaning of the Act.

The Lords Justices concurring, the appeal was accordingly allowed with costs.

CLAIM FOR COMPENSATION AGAINST THE LONDON COUNTY COUNCIL.

THE case of *In re* an arbitration between the Great Eastern Railway Company and the London County Council came before the Court of Appeal, consisting of Lord Justice Vaughan Williams, the President of the Probate, etc., Division, and Mr. Justice Bigham, last week, on the appeal of the London County Council from a judgment of Mr. Justice Kennedy in the King's Bench Division.

Sir Edward Clarke, K.C., and Mr. Edward Morten appeared for the appellants; and Mr. J. Eldon Bankes, K.C., and Mr. Nicholl for the respondents on the appeal.

Sir Edward Clarke, in opening the case, said that it arose out of claims by the railway company against the London County Council in respect of certain land easements taken by the London County Council for the purpose of making a new street. The *locus in quo* was Little Prescot-street, and the claims of the railway company were submitted to the Arbitrator, who stated his award in the form of a special case. The case dealt with was three items of claim. One item was for the value of the land actually taken. Another was a subordinate matter with which the Arbitrator also dealt, and with regard to those two claims no question now arose. On the third claimant of damages, however, the Arbitrator awarded a sum of 5,859*l.*, which was for the diminution in value of a warehouse belonging to the railway company in Little Prescot-street, by reason of the proposed widening of the pavement. These premises were used by the railway company as a warehouse for the reception and transmission of goods. In front of the warehouse there was a pavement 5 ft. in width. As the pavement was so narrow, openings had been made in the wall of the premises and flaps were let out which stretched across the pavement, and from these flaps goods were delivered into vans drawn up against the pavement. This caused an absolute interruption of any traffic which there might be along the pavement. What the London County Council had done was to take a small portion of the premises which belonged to the railway company for the purpose of making a new street, and when the new street was made the pavement would be widened from 5 ft. to 12 ft., and the effect of that would be that the flaps from the warehouse would not reach the vans, and therefore the railway company would not be able to carry on work in the premises in the same way as they had done before, and for that the Arbitrator had awarded the sum he had mentioned. Mr. Justice Kennedy affirmed his decision. One question was whether in the circumstances found by the Arbitrator the railway company had such a right of user across the pavement as to be entitled to treat that as a matter of compensation and as a right appertaining to the property they were dealing with. The second point was that the railway company could not recover that sum of money inasmuch as the work which had been formerly done by the railway company from their building was not done upon land which belonged to them and which was taken from them. His contention was that the railway company had no right at all to do what they did, and therefore that nothing had been taken away from them.

After hearing Counsel on behalf of the respondents in support of the judgment in the Court below, their lordships dismissed the appeal, holding that the railway company, in the circumstances, were entitled to the basis of compensation fixed by the Arbitrator.

CLAIM AGAINST BUILDER'S ESTATE.

MR. JUSTICE WALTON, in the King's Bench Division, on the 21st inst., delivered judgment in an action brought by Messrs. Dorman, Long, & Co. against the executors of the late Mr. Geo. Bell, builder, of Tottenham, London, to recover 134*l.* 10s. 11d., the balance alleged to be due for 150 tons of rolled steel joists supplied to Mr. Bell at 10*l.* 5s. a ton.

Mr. Symons, for the plaintiffs, explained that the issue in the case really depended upon the definition of the phrase "an all round price" used in the contract between the parties. The contract was to supply 150 tons of rolled steel joists at an all-round price of 10*l.* 5s. per ton. Plaintiffs contended that that phrase meant that the auxiliary fish-plates, bolts, etc., should be included in the weight for which that price should be paid. Defendants contended that the weight of the steel joists only should be taken, and that the weight of the fish-plates and bolts should be excluded. The learned Counsel said that in the event of the plaintiffs succeeding in their case defendants claimed that 85*l.* odd, the price of certain lead run round the bolts, holding plates and supporting pillars, should be subtracted from the 134*l.* as being really included in the price paid to the plaintiffs under a separate contract to erect and fix the pillars.

Mr. Symons desired to call expert evidence as to the meaning of the term "an all-round price" in this particular trade, but his lordship declined to hear it on the ground that the issue would have to be decided by him on the face of the contract.

Mr. Scott, for the defendants, quoted a letter from Mr. Bell asking for the price of steel joists per ton, fixed in site, and another from plaintiffs quoting 10*l.* 5s., and he drew the inference from that that the 10*l.* 5s. for the ton of joists alone included the supply of the accessories. He was, he said, prepared with evidence to show that 10*l.* 5s. was too high a price if the accessories were not included.

Mr. Symons: And we are prepared with evidence to the contrary.

Mr. Scott contended that the contract on the face of it supported his contention. He said that the plaintiffs quoted 6*l.* 10s. for the joists alone, and the additional 3*l.* 15s. he thought must surely be held sufficient to pay not merely for the fixing of the joists but for the accessories requisite to fix them in site.

His lordship, in giving judgment, said the construction of the contract under which the work was executed was very difficult owing to the obscurity of the language used, and in construing it he had to draw what light he could

from surrounding circumstances. What the parties really meant he did not care to guess at; but he thought the simple and more natural construction was that of the plaintiffs, viz., that the price of 10*l.* 5s. a ton was to be taken as payable not only on the steel joists, but upon the weight of the fish-plates, bolts, and nuts required in fitting them. On the question of the counterclaim he thought the plaintiffs had undertaken in their contract for the fixing of the pillars to be at the cost of the lead. He therefore gave judgment for the plaintiffs for 99*l.* 4s. 8d. on the claim, and for the defendants on the counterclaim for 35*l.* 6s. 5d.

APPORTIONMENT OF NEW STREET EXPENSES.

IN the Court of Appeal on the 25th inst., before Lord Justice Vaughan Williams, the President of the Probate, Divorce, and Admiralty Division, and Mr. Justice Bigham, the hearing was concluded of the case of Couchman and Stroud *v.* the Lewisham Borough Council, on the plaintiff's appeal from a judgment of a Divisional Court of King's Bench, consisting of the Lord Chief Justice and Justices Ridley and Darling. (The case was reported in last week's issue of the *Builder*.)

In this case the appellants, Mr. Frederick Stroud and Mrs. Couchman, the tenants in common of some land in the Borough of Lewisham, appealed from the decision of the Divisional Court affirming the order of Mr. Kettle, the stipendiary (since retired), directing the appellants to pay 137*l.* odd as their apportioned part of the estimated expenses of forming a new street called Littlewood, in the Borough of Lewisham. On behalf of the appellants it was said that the estimates were for a 40-ft. road, and upon the facts as found by the learned magistrate a 40-ft. road could not, in fact, be constructed, as there was not 40 ft. of available space to make a road that width. In these circumstances it was alleged that the estimated expenses were for something which could not be carried out, and therefore that the apportionment in question was bad. It was urged on behalf of the appellants that to make the proposed new road of 40 ft. wide the Borough Council would have to encroach on the appellants' land to the extent of 5 ft., and for this reason it was said that the apportionment was a bad one.

Mr. J. B. Matthews appeared for the appellants; and Mr. Macmorran, K.C., and Mr. Courthorpe Munroe for the respondents on the appeal.

In the result, after a long discussion, a settlement was arrived at, viz., the magistrate's order for payment to stand, upon the understanding that the road was made up by the local authority and the charges apportioned, the appellants' portion to be left untouched and apportioned later on.

It was also a term of the agreement that there should be no costs to either side either in that Court or in the Court below.

DAMAGE TO HIGHWAYS BY EXTRAORDINARY TRAFFIC.

IN the Court of Appeal, consisting of the Lord Chief Justice and Lords Justices Buckley and Kennedy, on the 25th inst., a considered judgment was delivered in the case of the Bromley Rural District Council *v.* The Mayor, Aldermen, and Burgesses of the Borough of Croydon, and Thomas Wood & Sons and Chittenden & Simmonds, third parties, on the defendants' appeal from a judgment of Mr. Justice Walton in the King's Bench Division.

In this case the plaintiffs brought the action to recover from the defendants, the Croydon Corporation, 698*l.* 15s. 5d. for extraordinary expenses incurred in the repair of a highway by reason of excessive weight passing along the same, and extraordinary traffic thereon. The plaintiffs, as the local authority liable to repair highways in their district, alleged that they had incurred extraordinary expenses in repairing a highway from Farnborough to West Wickham by reason of the damage caused by excessive weight passing along the same by order of the defendants, the Croydon Corporation, the alleged extraordinary traffic being the haulage by traction-engines of waggons containing flints and ragstone for the defendants, the work of haulage being done by the two firms who were joined as third parties to the action. The period during which the damage on which the claim was founded was alleged to have been done from March 31, 1904, to March 31, 1905, and the writ in the action was issued on August 22, 1905. The defendants denied that the traffic was extraordinary, and pleaded that even if it was so the plaintiffs could not recover for damage done to the road more than twelve months before the issue of the writ, owing to the provisions of sect. 12, subsect. 1 (b), of the Locomotives Act, 1898. Mr. Justice Walton held that there had been extraordinary traffic, causing damage to the extent of 350*l.*, and held that though the flints were supplied for the general purposes of the defendants and not for any one definite piece of work, yet the work done by the contractors was similar to work done under a building contract, and was work extending over a long period within the meaning of the section. He accordingly gave judgment for the plaintiffs for 350*l.*, and not only for the amount due in respect of the haulage done between August 22, 1904, twelve months before the proceedings were commenced. Hence the present appeal of the defendants.

Their lordships held that the plaintiffs could only recover for damage done during the twelve months preceding the issue of the writ; that was from August 22, 1904, to March 31, 1905. Judgment was accordingly entered for the plaintiffs for 150*l.*, the apportioned amount of damage within the period allowed, with no costs of the appeal.

Mr. Danckwerts, K.C., Mr. Hohler, K.C., Mr. Colam, and Mr. Charles appeared for the appellants; and Mr. Macmorran, K.C., and Mr. Hansell for the respondents.

Patents of the Week.

APPLICATIONS PUBLISHED.*

23,739 of 1906.—H. GRASSBY: *Construction of Dock Walls, Retaining Walls, Piers for Bridges, Buildings, and the like.*

THIS relates to the construction of dock-walls, retaining walls, and other solid structures of a like nature, in which a metal framework is combined with the masonry, and consists in the combination with metal piles of I section of metal waling pieces or longitudinal girders of a similar section to the metal piles, said waling pieces having slots or notches cut or otherwise formed in them to allow them to slide down the piles, and also to engage with the flanges thereof.

23,763 of 1906.—W. H. BOORNE: *Saws or Cutting or Grinding Wheels for Stone, Marble, and the like.*

This relates to circular and other saws, which are used for cutting stone, marble, cement, and the like, and in which saws an abrasive material is fixed to a disc or backing of metal, celluloid, or other material, and consists in forming the sides of the abrasive material in distinct wedge or sloping fashion, and in such a way that the side of the material does not cause friction on the workpiece when the saws are in use.

24,011 of 1906.—A. D. M. STEWART: *Droppers for Wire Fencing.*

This relates to a dropper for wire fencing characterised by a series of holes for the intermediate wires and pairs of open slots with opposing obliquities for the topmost and lowermost wires, the holes and slots being so located that the topmost and lowermost wires are deviated horizontally with respect to the intermediate wires, so that the dropper is automatically locked on the wires when the latter are strained.

28,649 of 1906.—H. W. COWLEY & CO., and H. W. COWLEY: *Augers or Cutting-tools for Boring Wood and like substances.*

This relates to cutting-tools or augers which perform their cutting operations by their rotary motion, the same having spiral grooves formed of tapering shape in longitudinal section.

29,637 of 1906.—E. L. CANTWELL: *Sheet Metal Roofing.*

This relates to sheets for metal roofing having crooked ends, one end of each sheet having an undercrook and the other end an overcrook, so as to engage with overcrooks and undercrooks respectively of the adjoining sheet ends, a suitable clip being provided for holding the joints on to boards or purlines of the roof, and consists in strengthening the joints by inserting wire into the bends of the crooks.

3,121 of 1907.—G. BROWN: *Means for Attaching Door and Like Knobs and Handles to their Spindles.*

This relates to a locking device for attachment to spindles of mortise, rim, or other locks, of the knobs or handles whereby the said knobs or handles are firmly fastened to their spindles, and consists in forming the shank of the knob or handle with a recess in it, which recess is adapted to fit over a taper pin placed through the spindle, said knob or handle being held in position over the taper pin by means of a nut *which screws* on to the spindle, and forms part of the handle.

3,525 of 1907.—D. J. WINN: *Sheet Metal Roofing.*

This relates to a sheet metal roofing plate having along one edge an angular upward and downward bend, and along the other edge four angular bends, the inner two being bent angularly upward and downward, and the outer two being bent outwardly and upwardly, all of the metal surfaces between the bends being flat and substantially of equal sections adapted to register with each other.

* All these applications are in the stage in which opposition to the grant of patents upon them can be made.

3,556 of 1907.—J. KRAUSE and H. J. RILEY: *Drawplates for Domestic Fireplaces.*

This relates to a drawplate appliance for domestic fireplaces provided with a suitable means (such as a clip, a hook-ended bar or the like) attached thereto, whereby it can be also used as a fireguard covering in the open front of the fire, the said means, when the appliance is used as a drawplate, being moved out of position, and placed in position again when used as a fireguard covering.

7,402 of 1907.—P. BROADBOOKS: *Vices and Pipe and Rod Gripping Attachments therefor.*

This relates to a vice comprising the combination of a jaw having an opening therethrough for the passage of a sliding bar, the bottom wall of said opening having an angle constituting a biting fulcrum for the said bar—a smooth surfaced tiltable jaw carrying bar adapted to slide through said opening, and be tipped therein when being adjusted, and an adjustable device set in the jaw above the angle and adapted to bear upon the bar in rear of the angle whereby the bar will be automatically locked in any position when its outer end is lowered to a substantially horizontal position.

8,124 of 1907.—E. REITLER: *Slow-combustion Stoves.*

This relates to a slow-combustion stove of that class which comprises a feed chamber and a combustion chamber with a partition between them, and lateral conduits for supplying the primary air for combustion, and consists in the primary air conduit, for removing the combustion gases, being connected through a valve with the upper part of the feed chamber in order to prevent air entering from below and rising upwards when lighting the stove.

8,327 of 1907.—J. V. BOLAND: *Chimneys.*

This relates to a chimney having its base and superstructure formed of concrete reinforced by metal beams embedded therein in the form of a base frame and one or more series of uprights anchored to said frame, the various sections of each upright being interlocked at the ends thereof.

10,714 of 1907.—P. HABAY: *Multiple Moulds for the Manufacture of Tee and Double Tee Beams or other Pieces in Concrete, armed Cement, or any Agglomerated Product.*

This relates to an apparatus for moulding single and double Tee beams and other pieces in reinforced concrete, concrete, or the like, comprising a travelling carriage having the two halves of the mould secured to the ends of levers, which levers, by means of suitable gearing, cause the two halves of the mould to swing open when the beam or the like is made substantially as specified.

11,115 of 1907.—J. COOMBS: *Plaster Ceilings.*

This relates to the manufacture of a plaster ceiling of the kind in which a textile fabric is supported beneath the ceiling joists, and in which wires are supported beneath said textile fabric, characterised in that bevelled fillets or strips of wood, having their broader sides downwards, are secured to the under sides of the ceiling joists, and have a textile material such as Hessian cloth or scrim secured to their under sides, whereupon temporary supports are arranged on the under side of said textile material, and plaster applied to the upper side of the said textile material, the temporary supports being afterwards removed, and the under side of the ceiling finished as required.

12,183 of 1907.—AMERICAN CONCRETE STEEL COMPANY: *Reinforced Concrete Structures.*

This relates to reinforced concrete structures comprising a truss having a continuous bracing member formed into a series of loops with upwardly inclined parallel sides, the said loops engaging directly in lateral notches in a longitudinal member of the truss, and being locked therein by a kink or bend in the bracing.

12,184 of 1907.—AMERICAN CONCRETE STEEL COMPANY: *Reinforced Concrete Structures.*

This relates to a metal truss reinforcement for concrete structures comprising a lower or tension member and a web or bracing, composed of a series of integrally-connected parallel-sided loops bent transversely underneath the tension member, engaging in open-sided slots therein and extending upwardly from opposite sides thereof, the straight connecting portions at the ends of the loops extending in a direction substantially parallel to the longitudinal axis of the truss.

24,083 of 1906.—E. T. GIBSON: *Intrenching Shovel-Carriers.*

This relates to an intrenching shovel-carrier comprising a device for supporting the sheath from the waist-belt, and adapted to be detached from the waist-belt without disconnecting the ends thereof.

PATENTS.—*Continued at page 599.*

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xvii.; Auction Sales, xxvi.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements: and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

DECEMBER 19.—**Llandrindod Wells.**—RECREATION GROUND AND PAVILION.—The Llandrindod Wells U.D.C. invite competitive schemes for (*a*) laying out the recreation ground and (*b*) erecting a pavilion and other buildings. Full particulars are obtainable from Mr. D. C. Davies, Clerk to the said Council, Llandrindod Wells.

NO DATE.—**Dudley.**—COLLEGE.—The Dudley Education Committee invite designs for a day training college within their area. Architects desirous of sending a competitive design are requested to make application to Mr. J. M. Wynne, Secretary and Director, Education Offices, Dudley.

* NO DATE.—**Maidenhead.**—SCHOOL.—The Berkshire Education Committee offer prizes of 100*l*., 50*l*., and 25*l*. for designs for a new secondary school at Maidenhead. For further particulars see advertisement in this issue.

Contracts.

BUILDING.

NOVEMBER 30.—**Elland.**—HOTEL ALTERATIONS.—For the proposed alterations to the Town Hall Hotel, Elland. Names to Messrs. Samuel Jackson & Son, architects, valuers, and engineers, 11, Tanfield-chambers, Bradford.

NOVEMBER 30-DECEMBER 7.—**Grantown.**—ALTERATIONS, ETC., TO MANSE.—Estimates wanted for the mason, carpenter, plumber, slater, plaster, and painter works of alterations and repairs to be executed on Manse of Cromdale. Plans, etc., may be seen at the Strathspey Estate Office, Grantown, up to the 30th inst., and with Mr. John Wittet, architect, Elgin, from that date.

NOVEMBER 30-DECEMBER 9.—**Ipswich.**—ALTERATIONS, ETC., TO SCHOOL.—Ipswich Education Committee invite tenders for the execution of certain alterations of, and additions to, the premises of the Municipal Secondary School for Girls in Bolton-lane, Ipswich. The plans, etc., may be seen on application to the architect, Mr. E. T. Johns, of Tower-chambers, Tower-street, Ipswich, from whom a copy of the bill of quantities may be obtained on deposit of the sum of 1*l*. 1s.

DECEMBER 2.—**Buckhaven.**—BUSINESS PREMISES.—Buckhaven Co-operative Society, Ltd., Fife, invite tenders for new buildings at Buckhaven. Application for schedules, etc., must be made to the architect, Mr. Harold O. Tarbolton, F.R.I.B.A., 12, Queen-street, Edinburgh, and a deposit of 1*l*. 1s. per trade must accompany each application.

DECEMBER 2.—**Wrenthorpe.**—BOUNDARY WALL.—Stanley District Education Sub-Committee invite tenders for erection of boundary wall and laying of new playground, etc., at Wrenthorpe School. Specifications may be had on application from Mr. Alexander Angus, West Riding Education Office, Northgate, Wakefield.

DECEMBER 3.—**Tow Law and Howden-le-Wear.**—SCHOOL ALTERATIONS.—The C.C. of Durham invite tenders for alterations at Tow Law and Howden-le-Wear Council schools. Plans, etc., may be seen at the respective schools or at the office of the County Education Committee's Architect, Shire Hall, Durham. Bills of quantities may be obtained from Mr. A. J. Dawson, Clerk to the Education Committee, Shire Hall, Durham.

DECEMBER 3.—**Wood Green.**—CORRUGATED IRON SCHOOL BUILDING.—Wood Green U.D.C. Education Committee invite tenders for supplying and fixing a temporary school building. Plans may be seen, and specification, etc., obtained, at the office of the Surveyor, Town Hall, Wood Green, upon payment of a deposit of 1*l*. 1s.

DECEMBER 4.—**Edinburgh.**—WALL.—Edinburgh and District Water Trustees invite tenders for erecting boundary wall round Dunsapie Tank, above Willowbrae-road. Plans may be seen, and copies of the specification, etc., obtained, at the office of the engineer, Mr. W. A. Tait, C.E., 72A, George-street, Edinburgh, on payment of 1*l*.

DECEMBER 4.—**Newtown, Mountain Ash.**—COTTAGES.—Messrs. Nixon's Navigation Company, Ltd., invite tenders for the erection of twelve cottages at Newtown, Mountain Ash. Plans, etc., may be seen at Navigation Offices, Mountain Ash.

DECEMBER 4.—**Nottingham.**—SCHOOL REPAIRS.—Nottingham Education Committee invite tenders for the execution of ordinary minor repairs to school buildings for the two years ending December 31, 1909. Forms of tender, etc., may be obtained from Mr. Frank B. Lewis, City Architect, Guildhall, on payment of 1*l*. for each of three contracts.

DECEMBER 4.—**Southampton.**—ADDITIONS TO WAREHOUSE.—The Southampton Harbour Board invite tenders for certain alterations and additions to warehouse "F," Town Quay. Drawings, etc., may be seen upon application at Harbour Board Offices, Town Quay, Southampton, to Mr. E. Cooper Poole, A.M.Inst.C.E., Engineer to the Board, and bills of quantities, etc., obtained upon payment of 1*l*.

DECEMBER 6.—**Mirfield.**—SCHOOL.—The West Riding Education Committee invite tenders in connexion with the erection of a new school at Mirfield. Plans may be seen, and bills of quantities obtained, on application to this office. A deposit of 1*l*. is required, which will be returned on receipt of a *bonâ-fide* tender. Cheques, etc., must be made payable to the West Riding Treasurer, and sent to him direct, at the County Hall, Wakefield.

DECEMBER 7-28.—**Anerley.**—SCHOOL-HOUSE.—The Managers of North Surrey District School, Anerley, S.E., invite tenders for the erection on the school premises of a small house as a residence for the assistant masters. The drawings, etc., may be seen, and form of tender obtained, at the offices of Mr. Cecil A. Sharp, architect, 11, Old Queen-street, Queen Anne's-gate, S.W.

DECEMBER 7.—**Carlisle.**—TOOL-HOUSE, ETC.—Carlisle Burial Joint Committee invite tenders for the erection of a tool-house and also for a wooden soil tray at Upperby Cemetery. Plan, etc., may be seen at 34, Lowther-street.

DECEMBER 9.—**Handsworth.**—HEATING.—The U.D.C. of Handsworth Education Committee invite tenders for heating Cookery and Laundry Extensions, Wattville-street Council Schools, and laboratory and woodwork shops, etc., in Rookery-road Council School. Applications for forms of tender, etc., may be obtained from the architects, Messrs. Wood & Kendrick, West Bromwich. A deposit of 1*l*. 1s. must be forwarded with applications for form of tender.

DECEMBER 9.—**Long Eaton.**—SCHOOL.—Derbyshire C.C. invite tenders for proposed higher elementary school and pupil teachers' centre, Long Eaton, to accommodate 300 students. Drawings, etc., at the office of the Architect to the Committee, St. Mary's Gate, Derby. A copy of the bill of quantities, etc., can be obtained at the office of Mr. George H. Widdows, A.R.I.B.A., Architect to the Committee, County Education Office, St. Mary's Gate, Derby, upon payment of 1*l*. 1s.

* DECEMBER 10.—**Cardiff.**—GOODS-SHED.—The G.W. Railway Directors invite tenders for the erection of a goods-shed and offices at Newtown-yard, Cardiff. For further particulars see advertisement in this issue.

* DECEMBER 11.—**Hornsey Rise.**—FIRE-ESCAPE STAIRCASES.—The Guardians of St. Leonard, Shoreditch, invite tenders for erection of fire-escape staircases at their additional workhouse, Hazelville-road, Hornsey Rise, N. For further particulars refer to an advertisement in this issue.

* DECEMBER 11.—**Scarborough.**—POST-OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for the erection of a new post-office at Scarborough. For further particulars see advertisement in this issue.

DECEMBER 12.—**Halifax.**—STABLING, FIRE BRIGADE STATION, ETC.—Tenders are invited for the several works comprised in the erection of stabling and loose boxes for eighteen horses, cart shed, fire brigade station, three dwelling-houses, extensive yard formation, and setting; also approaches and other works for the Halifax Flour Society, Ltd. Drawings, etc., will lie for inspection, and bills of quantities may be obtained, at offices of Mr. W. Clement Williams, architect, 29, Southgate, Halifax.

DECEMBER 16.—**Cadishead.**—SCHOOL.—Lancashire Education Committee invite tenders for the erection of a new public elementary school at Cadishead, near Manchester, to accommodate 450 children. The plans may be seen, and bills of quantities obtained, at the office of the County Architect, Mr. Henry Littler, 16, Ribblesdale-place, Preston, by payment of a deposit of 2*l*.

DECEMBER 18.—**Lamberhead Green.**—SCHOOL.—Lancashire Education Committee invite tenders for the erection of a new public elementary school at Lamberhead Green, near Wigan, to accommodate 500 children. The plans may be seen, and bills of quantities obtained, at the office of the County Architect, Mr. Henry Littler, 16, Ribblesdale-place, Preston, by payment of a deposit of 2*l*.

* DECEMBER 19.—**London.**—ENLARGEMENT OF PARCEL OFFICE.—The Commissioners of H.M. Works invite tenders for the enlargement of the Western district Parcel Office and Mayfair Telephone Exchange. For further particulars refer to an advertisement in this issue.

* DECEMBER 31.—**Bridgnorth.**—SCHOOL.—The Salop C.C. (Higher Education Department) invite tenders for the erection of a secondary school at Bridgnorth.

* NO DATE.—**Aldershot.**—ISOLATION STALLS, ETC.—Tenders are invited for the erection of isolation stalls and loose boxes for the Army Veterinary Establishment at Aldershot. For further particulars see advertisement in this issue.

* NO DATE.—**Goole.**—NEW SCHOOL.—The Governors of the Goole Secondary School invite tenders for a new school at Goole. For further particulars refer to an advertisement in this issue.

NO DATE.—**Norwich.**—MISSION ROOM.—For proposed mission room for the Vicar and Churchwardens of St. Martin-at-Palace. Names at once to Messrs. Lacey & Upcher, architects and surveyors, 6, Upper King-street, Norwich.

NO DATE.—**Tunstall.**—GREENHOUSE.—Tunstall U.D.C. invite tenders for the supply and erection of a greenhouse in the park, 45 ft. by 18 ft. Particulars may be obtained upon application to Mr. A. M. Wood, Surveyor, Town Hall.

ENGINEERING, IRON, AND STEEL.

DECEMBER 3.—**Kirkstall, Leeds.**—HEATING.—The Trustees of Zion Chapel, Victoria-road, Kirkstall, Leeds, invite tenders for the heating of the chapel by hot water. Particulars on application to the Chapel Keeper, on premises.

DECEMBER 4.—**London.**—COAL WAGONS, ETC.—The East Indian Railway Company invite tenders for the supply and delivery of:—(1) Coal wagons and brake vans; (2) wheels and axles, as per specifications to be seen at the Company's offices, Nicholas-lane, London, E.C. For each specification a fee of 1*l*. 1s. is charged, which cannot, under any circumstances, be returned.

DECEMBER 9.—**Belvedere.**—ELECTRIC WIRING.—Erith U.D.C. invite tenders for carrying out the work required for the complete installation of electric light of forty-eight municipal cottages, situate in Brook-street, Belvedere. Copies of the specification, etc., may be obtained from Mr. Charles H. Fry, Clerk of the Council, Council Offices, Erith, Kent, upon deposit of 1*l*.

DECEMBER 9.—**Newcastle-upon-Tyne.**—BATH AND MESS ROOMS, BENWELL REFUSE DESTRUCTOR.—Tenders are invited for the erection of a small two-story steel-framed structure, with panels, filled in with brick and covered with corrugated sheeting, for bath and mess room in connexion with the Benwell Refuse Destructor. Copy of plan, etc., will be supplied on application by letter addressed to the City Engineer, Town Hall, Newcastle-upon-Tyne, and enclosing cheque for 1*l*. 1s., payable to the City Treasurer.

DECEMBER 11.—**Hull.**—WIDENING DOCK ENTRANCE.—North-Eastern Railway Directors invite tenders for the widening of the William Wright Dock entrance at Hull. Plans may be seen, and specification obtained, on personal application to Mr. T. M. Newell, Dock Engineers' office, Hull.

DECEMBER 18.—**Dartford.**—PUMPS.—The U.D.C. of Dartford invite tenders for supplying and erecting complete, at Dartford, two pumps and electric motors, in accordance with particulars which may be obtained from Mr. W. Kay, Clerk to the Council, Council Offices, Dartford.

DECEMBER 23.—**Methil, Scotland.**—DOCK, ETC.—North British Railway Company Directors invite tenders for the construction of a new dock at Methil and of railway No. 1 authorised by the North British Railway Act, 1907. The drawings, etc., may be seen at the office of Messrs Blyth & Westland, civil engineers, 135, George-street, Edinburgh, and copies of the specification, etc., obtained from Mr. John Cathles, Secretary, 23, Waterloo-place, Edinburgh, on payment of 5*l*. 5s.

DECEMBER 28.—**Belfast.**—ELECTRIC TRAMWAY.—Belfast Harbour Commissioners invite tenders for the construction of a double line of electric tramway, permanent way, electric masts, cables, wiring, lamps, etc., on the County Down side of the harbour. Copies of the form of agreement, etc., may be obtained, and the contract drawings may be inspected, on application to the Harbour Engineer, Mr. W. Redfern Kelly, M.Inst.C.E.

NO DATE.—**Oldham.**—HEATING.—Oldham Education Committee invite tenders for heating and ventilating of the new Council infants' school, in Richmond-street. Particulars may be obtained on application to the architect, Mr. Thomas Hilton, 7, Union-street, Oldham.

MISCELLANEOUS.

DECEMBER 2.—**Merthyr Tydfil.**—CARTS.—The B.C. invite tenders for the supply of five scavenging carts. Mr. T. Aneuryn Rees, Town Clerk, Town Hall, Merthyr Tydfil.

DECEMBER 3.—**Bradford.**—SLATERS' WORK.—The Bradford Corporation invite tenders for the slaters' work at the Town Hall Extension. General conditions of contract may be seen, and bill of quantities, etc., obtained, on application to the City Architect, Whitaker-buildings, Brewery-street, Bradford.

DECEMBER 5.—**Birkenhead.**—DEMOLITION OF PROPERTY.—Birkenhead Education Committee invite tenders for the taking down of the premises, numbered 1 to 5, Hemingford-terrace, Conway-street, Birkenhead, of which full particulars may be obtained from the architect, Mr. T. Taliesin Rees, F.R.I.B.A., of 31, Hamilton-street, Birkenhead.

DECEMBER 5.—**Cork.**—PLANTING.—County of Cork Joint Hospital Board invite tenders for the supplying and planting of about 13½ statute acres of the Sanatorium grounds at Streamhill, Doneraile,

County Cork. Mr. E. J. Murphy, Secretary of Joint Hospital Board, Court House, Cork.

DECEMBER 5.—**Salford.**—SULPHURIC ACID.—Salford Gas Committee invite tenders for the supply of about 1,800 tons of sulphuric acid. Full particulars may be obtained on application to Mr. Wm. W. Woodward, Engineer, Gas Offices, Bloom-street, Salford.

DECEMBER 6.—**Bridgend.**—FURNITURE.—Ogmore Small-pox Hospital Committee invite tenders for the supply of furniture to their new hospital on Cefn Hirgoed. Detailed lists of articles and goods required may be obtained on application to Mr. R. C. Griffiths, Clerk, 10, Wyndham-street, Bridgend.

DECEMBER 6.—**Newcastle-on-Tyne.**—SAFES.—The Guardians of the Poor of the Newcastle-upon-Tyne Union invite tenders for the supply of four registrars' safes. Full particulars may be obtained on application to Mr. Arthur Stockwell, architect, 11, Pilgrim-street, Newcastle-upon-Tyne.

DECEMBER 7.—**Sunderland.**—CARTAGE.—The R.D.C. of Sunderland invite tenders for the cartage of broken road material for the year ending December 31, 1908. Forms of tender may be obtained on application to Mr. J. C. Wilson, Clerk to the Council, Board-room and Offices, 17, John-street, Sunderland.

DECEMBER 9. — **Thirsk.** — SCAVENGING. — Thirsk R.D.C. invite tenders for separate tips on which to deposit night soil, ashes, and other rubbish received from ashpits. Mr. William Swarbreck, Clerk, Finkle-street, Thirsk.

DECEMBER 11.—**Chiswick.**—VANS.—The U.D.C. of Chiswick invite tenders for the supply of two covered vans and one light open van. Copies of the specification and conditions and form of tender can be obtained of Mr. Edward Willis, A.M.Inst.C.E., Surveyor of the Council, Town Hall, Chiswick, where the form of contract, etc., may be inspected.

DECEMBER 11.—**South Shields.**—DISINFECTANTS.—South Shields Corporation invite tenders for the supply of disinfectants for a period of one year. Forms of tender and other information may be obtained from Dr. Mostyn, Health Office, Russell-street, South Shields.

DECEMBER 12.—**Prescot.**—FURNITURE.—Prescot Guardians invite tenders for surgical and ward furniture. Samples required must be seen at the Workhouse before tendering.

DECEMBER 17.—**Wharfedale.**—FURNITURE.—The Guardians invite designs and tenders for the furniture and appointments of their new Board-room. Particulars may be had upon application to Mr. J. H. Wall, architect, Otley.

DECEMBER 19.—**Bradford.**—GAS RETORTS.—The Bradford Corporation invite tenders for the supply of gas retorts and of firebricks and fireclay. Form of tender may be obtained on application to Mr. Chas. Wood, Gas Engineer, Town Hall, Bradford.

NO DATE.—**Usworth.**—POLES FOR ELECTRIC LIGHTING.—Great and Little Usworth P.C. invite tenders for the lighting of certain roads in the parish by electricity. Names to Mr. Jos. R. Elliott, Clerk to the Council, Fern House, New Washington.

PAINTING, etc.

DECEMBER 2.—**Halifax.**—PAINTING.—Halifax Market Committee invite tenders for painting the interior of the Borough Markets. Specifications may be seen, and forms of tender obtained, on application to Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax, upon payment of the sum of 1*l.*

DECEMBER 2.—**London.**—PAINTING.—St. George's-in-the-East Guardians require tenders on painting, decorating, and sundry work at the Casual Wards in Raymond-street, St. George's-in-the-East. Specifications may be obtained upon application at the Clerk's Office.

DECEMBER 4.—**Hastings.**—PAINTING, ETC.—Hastings Education Committee invite tenders (from local tradesmen) for painting, lime-washing, colour-washing, repairs, etc., to be carried out at schools during the Christmas holidays. Specifications may be seen, and form of tender obtained, at the office of the Borough Surveyor, Town Hall, Hastings.

DECEMBER 4.—**Nottingham.**—CLEANING, ETC.—Nottingham Education Committee invite tenders for internal cleaning and painting at Council schools. Specifications, etc., may be obtained from Mr. Frank B. Lewis, City Architect, Guildhall, on payment of a deposit of 1*l.* for each contract.

DECEMBER 4.—**Rhondda Valley.**—PAPERING, ETC.—For papering, painting, etc., at Treorchy Hotel, Rhondda Valley, for Messrs. David John & Co., Ltd. Specification may be seen at the hotel.

DECEMBER 11.—**Epsom.**—PAINTING.—Epsom (Rural), Sutton, Carshalton, and Leatherhead Joint Hospital Board (the Visiting Committee of the Cuddington Hospital) invite tenders for the painting of the inside of the administrative block of the Cuddington Hospital, situate near Banstead Railway Station. The specification, etc., can be seen at office of Mr. W. O. Reader, Clerk, Lonsdale, Epsom, or at the Hospital

✱ DECEMBER 11.—**Tooting.**—CLEANING AND PAINTING.—The Metropolitan Asylums Board invite tenders for cleaning and painting work at Tooting Bec Asylum, Tooting, S.W. For further particulars refer to an advertisement in this issue.

✱ DECEMBER 13.—**London.**—PAINTING, ETC.—The Guardians of St. George-in-the-East invite tenders for painting, decorating, and sundry works at the casual wards in Raymond-street, E. For further particulars refer to an advertisement in this issue.

NO DATE.—**York.**—PAINTING.—York County Hospital House Committee invite tenders for the painting of the outside of the hospital buildings. Full particulars may be obtained of the Secretary, Mr. Fredk. Neden.

ROADS, SANITARY, AND WATER WORKS.

DECEMBER 2.—**Tavistock.**—DRAINAGE.—For reconstructing the drainage system at Kelly College, Tavistock, including manholes, flushing tanks, etc. Plans may be seen, and bill of quantities, etc., obtained (upon deposit of 2*l.* 2s.), at the office of Mr. Wm. Geo. Lane, engineer, Drake-road, Tavistock.

DECEMBER 3.—**Claygate.**—ROAD WORKS.—The U.D.C. of Esher and the Dittons invite tenders for making-up parts of Beaconsfield-road and Claremont-road, Claygate, about 1,240 ft. run. Plans, etc., may be seen at office of Mr. E. A. Everett, Clerk, Council Office, Brabant Villa, Thames Ditton, upon payment of a deposit of 10s.

DECEMBER 3.—**Gabalfa.**—STREET WORKS.—Llandaff and Dinas Powis R.D.C. invite tenders for private street improvement works in Whitchurch-road, Gabalfa, in the Parish of Llandaff, in accordance with specification, which may be seen, and bills of quantities obtained, on application to the surveyor, Mr. James Holden, A.M.Inst.C.E., Park House, 20, Park-place, Cardiff.

DECEMBER 3.—**Handsworth.**—ROAD WORKS.—Handsworth U.D.C. invite tenders for making part of South-road, making and sewering part of South-road, and making part of Laurel-road. Particulars on application to Mr. H. Richardson, A.M.Inst.C.E., Surveyor to the Council.

DECEMBER 3.—**Stonehouse.**—MAKING-UP, ETC.—East Stonehouse U.D.C. invite tenders for sewering and making-up generally Battery-street South. The drawings, etc., may be seen, and the bill of quantities obtained, on payment of a deposit of 1*l.* 1s. at the Surveyor's office, Town Hall, East Stonehouse, Devon.

DECEMBER 3.—**Windsor.**—STREET WORKS.—New Windsor Corporation invite tenders for making-up Springfield-road, Windsor. The drawings, etc., may be seen, and forms of tender obtained, upon application at the office of the Borough Surveyor, Mr. E. A. Stickland, Alma-road, Windsor.

DECEMBER 4.—**Hammersmith.**—MAKING-UP.—Hammersmith B.C. invites tenders for making-up and paving Nascot-street, Caverswall-street, and Glenroy-street. Plans, etc., may be seen, and forms of tender obtained, on application to Mr. H. Mair, Borough Surveyor.

DECEMBER 4.—**Haswell.**—SEWAGE-DISPOSAL WORKS.—Easington R.D.C. invite tenders for the construction of sewage-disposal works at Haswell, co. Durham. Plans, etc., can be seen by appointment at the offices of the Council's Surveyor, Mr. Charles Rule, Haswell, *vid* Sunderland.

DECEMBER 4.—**Skewen.**—ROAD WIDENING.—The Glamorgan C.C. invite tenders for the widening and improving of the Neath and Llansamlet main road at Skewen. Plans, etc., may be seen, and copies of the quantities obtained, at offices of Mr. W. E. R. Allen, Deputy-Clerk of the C.C., County Council Offices, Westgate-street, Cardiff, and at the Police-station, Skewen.

DECEMBER 5.—**Leeds.**—STREET WORKS.—Leeds Highways Committee invite tenders for paving and flagging of streets. Drawings may be seen at the City Engineer's office, Municipal Buildings. Forms of tender, etc., may be obtained, and copies of the documents forming the contract inspected, on application at the Highways Office, 155, Kirkstall-road, Leeds.

DECEMBER 5.—**Liskeard.**—ROADWORKS.—Liskeard R.D.C. invite tenders for the raising, breaking, hauling, and spreading stones for the repairs of the highways. Mr. G. Hawken, Surveyor, Callington.

DECEMBER 6.—**Saddleworth.**—ROAD.—For the draining and formation of an intended carriage road, about 500 yds. in length, from Upper Mill-road to Ryefields, Dobcross, in the district of Saddleworth. Drawings, etc., may be seen, and bills of quantities obtained, at offices of Messrs. J. B. Abbey & Son, C.E., 34A, New-street, Huddersfield.

DECEMBER 6.—**Salisbury.**—ROAD AND SEWERS.—For the construction of a road and sewers, etc., on the Belle View Building Estate, Endless-street, Salisbury, for the Trustees of the late Mr. R. H. Rigden. Plans, etc., may be inspected, and forms of tender obtained, from Mr. Alfred C. Bothams, A.M.Inst.C.E., architect and surveyor, Salisbury.

DECEMBER 7.—**Macclesfield.**—VAULTS, ETC.—Macclesfield Cemetery Committee invite tenders for:—(*a*) The labour required in the construction of vaults and for entombments at the cemetery; (*b*) the carting of materials. Each contract will be for a period of three years, and specification required may be inspected at office of Mr. A. T. Pattinson, Town Clerk, District Bank Buildings.

DECEMBER 8.—**Rillington.**—WATER SUPPLY.—Norton R.D.C. invite tenders for works of water supply for the village of Rillington, and for the erection of a reservoir, etc. Plans, etc., may be seen, and full particulars obtained, on application to Mr. Robt. Richardson, C.E., Engineer to the Council, Town Hall, Malton.

DECEMBER 9.—**Grimethorpe, Brierley.**—ROAD-MAKING.—The R.D.C. of Hemsworth invite tenders for the making of several streets at Grimethorpe, in the Township of Brierley. Plans, etc., which may be seen at the office of Mr. T. H. Richardson, in Hemsworth.

DECEMBER 9.—**Hucknall Torkard.**—SEWER.—Hucknall Torkard U.D.C. invite tenders for the laying of a sewer, etc. The drawings, etc., may be seen at the office of the Surveyor, Mr. William Swann, Council Offices, Hucknall Torkard, of whom specification, etc., may be obtained on deposit of 1*l.*

✱ DECEMBER 10.—**Bromley.**—STREET IMPROVEMENT.—The Bromley B.C. invites tenders for sewering, levelling, paving, metalling, channelling, and making good Queen's-road. For further particulars refer to an advertisement in this issue.

DECEMBER 10.—**Unsworth.**—PAVING.—The Lancashire C.C. invite tenders for the labour and materials (except granite setts) required in the excavation, forming concrete foundation, and paving of about 3,000 super. yds. of the Manchester and Bury road, in the township of Unsworth. Specification, etc., may be had on application to Mr. W. H. Schofield, A.M.Inst.C.E., County Offices, Preston.

DECEMBER 11.—**Little Anglesey.**—SEWER.—Gosport and Alverstoke U.D.C. invite tenders for the construction of a sewer, consisting of about 500 yds. of iron pipes, etc., Little Anglesey. Specifications, etc., may be obtained at the Surveyor's Office, where plans and sections may be seen, upon deposit of a cheque for 1*l.* 1s.

✱ DECEMBER 11.—**Willesden.**—NEW ROADS AND DRAIN.—The Guardians of the Parish of Willesden invite tenders for making of their proposed new roads, and laying drain from Acton-lane to the Workhouse Buildings at Acton-lane, Willesden. For further particulars refer to an advertisement in this issue.

DECEMBER 17.—**Longford.**—WATERWORKS.—The Longford U.C. invite tenders for the construction of an auxiliary storage reservoir, filter beds, clear-water tank, and laying of sundry pipes, etc., in connexion with the existing waterworks. Maps and plans, etc., which have been prepared by Mr. Thomas Biggs, A.M.Inst.C.E.I., can also be inspected at office of Mr. Nicholas Lamb, Town Clerk, Longford, and a specification, etc., will be given on payment of a sum of 1*l.*

DECEMBER 20.—**West Drayton and Yiewsley.**—SEWERS, ETC.—Uxbridge R.D.C. invite tenders for construction of surface-water sewers and road-making, West Drayton and Yiewsley (Middlesex). Plans may be seen, and copies of the specifications, etc., obtained, on application to Mr. J. Freebairn Stow, Engineer and Surveyor to the Council, Surveyor's office, Corn Exchange, Uxbridge, on payment of a deposit of 3*l.* 3s.

STONE, MATERIALS, AND STORES.

DECEMBER 3.—**London.**—STEEL TYRES.—Bombay, Baroda, and Central India Railway Directors invite tenders for the supply of steel tyres for carriages and wagons, and brass boiler tubes. Forms, etc., can be obtained at offices of Mr. W. V. Constable, Secretary, Gloucester House, 2, 3, and 4, Bishopsgate-street Without, London, E.C., on payment of 21s. each (which will not be returned).

DECEMBER 3.—**Manchester.**—PITCH.—Manchester Corporation Tramways Committee invite tenders for the supply of pitch for paving purposes. Specifications, etc., may be obtained on application to Mr. J. M. M'Elroy, General Manager, Tramways Department, 55, Piccadilly, Manchester.

DECEMBER 3.—**Salford.**—PIPE SEWER.—Salford Corporation invite tenders for about 285 yds. of 18-in. earthenware pipe sewer, with manholes, etc. The drawings may be seen, and copies of the specified quantities obtained, at the Borough Engineer's office, Town Hall, Salford.

DECEMBER 4.—**London.**—GRANITE SPALLS.—The Guardians of the Poor of the Parish of St. Giles, Camberwell, invite tenders for the supply of 200 yds. of granite spalls, to be delivered at their Workhouse, Gordon-road, Peckham. Forms of tender, etc., may be obtained upon application to Mr. Charles S. Stevens, Clerk to the Guardians, Guardians' Offices, 29, Peckham-road, S.E.

DECEMBER 4.—**Manchester.**—SUPPLIES.—The Cleansing Committee of the Manchester Corporation invite tenders for twelve months' supplies of malleable iron castings, iron castings, gun-metal and phosphor bronze castings, iron and steel, creosote oil, pitch, etc. Specifications may be obtained from Mr. C. Williamson, Superintendent of the Cleansing Department, Town Hall, Manchester.

DECEMBER 5.—**Dover.**—MATERIALS.—The Dover Harbour Board invite tenders for the supply of materials. Schedules, etc., may be had on application at office of Mr. Martyn Mowll, Register of Dover Harbour, Castle-street, Dover, on payment of 2s. 6d. for each complete set of the schedules.

DECEMBER 6.—**Barry.**—STORES.—The Barry Railway Company invite tenders for the supply of general stores and materials. Specifications, etc., may be obtained from Mr. W. Mein, Company's Offices, Barry Dock.

DECEMBER 6.—**Bolton.**—ARTICLES.—Bolton Scavenging and Sewage Committee invite tenders for the supply of articles (timber for wheelwrights, iron for blacksmiths, lime for mortar-making, etc.). Samples and specifications may be seen on application at the Town's-yard, Falcon-street, Bolton.

DECEMBER 6.—**Braintree.**—TILES.—Forty-five squares of either best corrugated or flat French roofing tiles. Also 125 ft. lin. of half-round ridge tiles. Mr. E. H. Bright, Surveyor, Dodds Hall, Braintree.

DECEMBER 7.—**Sunderland.**—ROAD MATERIALS.—Sunderland R.D.C. invite tenders for the periodical supply and delivery of best 2½-in. hand-broken whinstone, 2½-in. machine-broken blast furnace slag, and ½-in. blast furnace slag chippings. Forms of tender may be obtained from Mr. J. C. Wilson, Clerk to the Council; offices, 17, John-street, Sunderland.

DECEMBER 9.—**Broadstairs.**—GRANITE KERBING.—Broadstairs and St. Peter's U.D.C. invite tenders for 1,350 ft. run of 6 in. by 12 in. granite kerbing (straight), 60 ft. ditto (circular, 6 ft. radius), 500 ft. run of 12 in. by 6 in. granite channelling (straight), and ten 2 ft. by 2 ft. by 6 in. quadrants. Forms can be obtained from Mr. H. Hurd, C.E., Town Surveyor, Council Offices, Broadstairs.

DECEMBER 9.—**London.**—STORES.—The Directors of the Powell Duffryn Steam Coal Company, Ltd., invite tenders for the supply of stores. Forms of tender, etc., can be obtained on application to the Stores Manager, Aberaman Offices, near Aberdare.

DECEMBER 10.—**Leicester.**—MATERIALS.—Leicester Corporation invite tenders for the supply of materials, as may be ordered during the year 1908. Form of tender, etc., may be obtained on deposit of 10s. Cheques, etc., should be made payable to the Borough Treasurer, Mr. E. George Mawbey, M.Inst.C.E., Borough Engineer and Surveyor, Borough Surveyor's office, Town Hall, Leicester.

DECEMBER 10.—**Perry Barr.**—ROAD MATERIAL.—The U.D.C. of Perry Barr invite tenders for the supply and delivery of (*a*) Rowley rag, etc., and (*b*) blast furnace cinder. Specification, etc., may be obtained on application to Mr. Ernest Bailey, Surveyor to the Council, at the Council House, Green-lane, Hamstead, near Birmingham.

DECEMBER 10.—**Whitefield.**—GRANITE SETTS.—The Lancashire C.C. invite tenders for the supply of 1,000 tons (more or less) of 4 in. by 5 in. granite setts, delivered at Whitefield Station. Form of tender may be obtained on application to Mr. W. H. Schofield, County Surveyor, County Offices, Preston.

DECEMBER 14.—**Maidstone.**—ROAD MATERIAL.—Kent Bridges and Roads Committee invite tenders for the supply of materials. Specification, etc., can be obtained upon application to the County Surveyor, Maidstone.

DECEMBER 18.—**Leicester.**—BRUSHES.—Leicester Corporation invite tenders for the supply of brushes, etc. Form of tender, etc., may be obtained at office of Mr. E. George Mawbey, M.Inst.C.E., Borough Engineer and Surveyor, Borough Surveyor's office, Town Hall, on deposit of 10s. Cheques, etc., to be made payable to the Borough Treasurer.

NO DATE.—**Newcastle-on-Tyne.**—STONE.—Northumberland C.C. invite tenders for supplying, breaking, and carting stone for the maintenance of main roads during the year ending March 31, 1909. For forms of tender, etc., apply to the County Surveyor, Moot Hall, Newcastle-on-Tyne.

NO DATE.—**Northumberland.**—ROAD MATERIAL.—Northumberland C.C. invite tenders for supplying, breaking, and carting stone for the maintenance of main roads during the year ending March 31, 1909. For forms of tender, etc., apply to the County Surveyor, Moothall, Newcastle-on-Tyne.

NO DATE.—**Ryhope.**—STORES.—The Ryhope Coal Company, Ltd., invite tenders for oils, iron, castings, grease, and all colliery stores, except timber. Forms of tender may be obtained on application by letter to the Offices, Ryhope Colliery, near Sunderland.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*CLERK OF THE WORKS	Bristol Lunatic Asylum, V.C.	3l. 10s. per week	Dec. 2

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*FREEHOLD BUILDING LAND, HARROW-ON-THE-HILL—Roxborough Hotel, Harrow	Protheroe & Morris.....	Dec. 4
*WHARFINGERS' AND CONTR.'S STOCK AND PLANT—At Rly. Whf., Norman-rd., Greenwich	Charles V. Stevens & Co.	do.
*FREEHOLD BUILDING LAND, BRIXTON-HILL—On the Estate	Douglas Young & Co.	do.
*FREEHOLD PROPERTY, CARDIFF—Old Town Hall, Cardiff	Douglas Young & Co.	Dec. 5
*NEW BRICKMAKING PLANT—On the Premises, South Lincolnshire Brick Co., Bourne	Saul	Dec. 17

PATENTS.—*Continued from page* 596.

27,268 of 1906.—S. J. L. SMARTT: *High-pressure Pipe Joint.*

This relates to a joint comprising two members provided respectively with an annular depression and an annular projection, by which the annular projection, when firmly held in contact with both edges of the annular depression, forms the joint, and consists in the use of a depression of square section with bevelled edges and a step.

29,579 of 1906.—E. A. GARRATT and A. COATES: *Tanks, Reservoirs, Caissons, and Other Containers.*

This relates to a tank, reservoir, caisson, or other container having the bottom formed of a channel-shaped section riveted to the tank walls, and of a plane section riveted to the channel section and of smaller diameter than the tank.

1,291 of 1907.—S. PEARSON & SON, LTD.: *Skips or Buckets.*

This relates to a self-discharging skip or bucket, more particularly to those of the kind described in specification No. 17369–'04, wherein the skips or buckets are constructed in halves hinged together at their upper parts and adapted to close when hanging from the hinge, and to turn open about the hinge when hung from points remote from the hinge. According to this invention the skip or bucket is provided with means whereby, as it is opened, material adhering to its walls will be scraped off. In a skip or bucket of the kind forming the subject of the specification mentioned each of the two hinged half-buckets comprises two sector-shaped end walls, and a connecting side wall that is rolled or otherwise shaped to the correct radius from the centre of the cross shaft to which the half-buckets are hinged, and to the end portions of which are fixed the hooks by which the skip or bucket is suspended from a sling chain when closed. To the cross shaft there is fixed a frame which, when the skip or bucket is closed, occupies the upper part thereof and extends close to its walls, so that, as the half-buckets in opening move in relation to it, concrete or other adhering material will be scraped off.

1,606 of 1907.—B. G. SMITH: *Siphon-discharge Flushing Cisterns.*

This relates to the use in combination with a siphon-cistern of a horizontal piston-cylinder having a nozzle directed concentrically into the open end of the siphon, and a piston operated by a lever and a pull-cord.

10,501 of 1907.—L. D. PUTNEY: *Instrument or Apparatus for Removing Obstructions from Stop-boxes, Sewer-vents, and Pipes.*

This relates to a tool for removing obstructions from stop-boxes, sewer-vents, and pipes, comprising a sectional tubular handle, a fixed jaw adjustably connected to the forward end of the sectional handle, a spring-pressed jaw hinged to the fixed jaw, a sectional wire passing through the tubular handle and connected at its forward end to the hinged jaw, a handle connected to the rear end of the sectional wire and operating through the rear end of the tubular handle, and an adjustable locking device arranged on the rear end of the tubular handle for engaging the handle on the rear end of the sectional wire.

10,536 of 1907.—W. EDGE: *Intercepting Tanks for Water-closets and the like.*

This relates to the combination, with water-closets and the like, of the use of a receptacle provided with perforations, slots, or small outlets, and containing a filtering-bed consisting of crushed cinders, breeze, fine gas or ordinary cinders, ashes, soot and like products of the consumption of coal from household or other fires, the said receptacle and its contents being disposed between the under-side of the closet-seat and the inlet to the sewer, together with a door and a doorway to allow of a person entering the intercepting tank for the purpose of either charging, discharging or cleaning the receptacle and the intercepting tank.

16,066 of 1907.—W. COTTRELL and THE FARRINGDON WORKS, and H. PONTIFEX & SONS, LTD.: *Flushing Cisterns.*

This relates to flushing cisterns, and has special reference to that class of cistern such as is employed in water-closets and the like, and which are known as siphon water-waste-preventers, and consists in fitting in the flat crown of siphon cylinders an air-valve operated by means of a float so that when the level of the water in the cistern falls to a certain level air is admitted to the siphon without passing under the lower edge of the cylinder, thus ensuring silence in action.

18,207 of 1907.—L. W. KAEMPF and J. W. MESSNER: *Squares.*

This relates to measuring instruments comprising a block, a plate comprising a body portion having its ends turned down and secured to the block so that the body of the block will be held in spaced relation to the face of the block to which it is secured, a stud having a flat, base countersunk in the said said face of the block and secured therein, said stud being extended through an opening in the plate, a member comprising right angularly extending calibrated arms and an intermediate non-calibrated arm which is slotted, said member being disposed between the plate and the block with the stud extending through the slot in the said intermediate arm, and a thumb nut engaged upon the stud above the plate and designed to hold the member in various adjusted positions.

MEETINGS.

FRIDAY, NOVEMBER 29.

***Royal Sanitary Institute** (Provincial Sessional Meeting, Leeds).*—**The meeting will be held in the Council Chamber, Town Hall, Leeds, at 7.30 p.m., when a discussion will take place on "Modern Methods of Sewage Disposal, with special reference to the Elimination of Suspended Matters," to be opened by Mr. G. A. Hart, Sewerage Engineer, Leeds.**

***Society of Arts** (Shaw Lectures on Industrial Hygiene).*—**"The Hygiene of Work in Compressed Air (Diving, Caisson Work, Sub-aqueous Tunnelling, etc.)," by Mr. J. Scott Haldane, M.A., M.D., M.R.C.P. (Edin.), F.R.S. Mr. H. L. Samuel, M.P., Under-Secretary of State for the Home Department, will preside, and will give a short introductory address. 8 p.m.**

FRIDAY AND SATURDAY, NOVEMBER 29 AND 30.

Institute of Sanitary Engineers.—Examination in Sanitary Science at London and Newcastle. 10 a.m.

SATURDAY, NOVEMBER 30.

***Royal Sanitary Institute** (Leeds Meeting).*—**Visit to Headingly filter-beds, by permission of the Waterworks Committee. From the works to proceed by special cars to Rodley to visit the sewage installation. A visit to the city hospitals at Seacroft and Killingbeck will be made later.**

MONDAY, DECEMBER 2.

Royal Institute of British Architects.—Business meeting. 8 p.m.

London Institution.—Mr. Arthur Fish on "British Painters and Pictures," illustrated. 5 p.m.

Liverpool Architectural Society.—Mr. Edgar Wood on "An Architect's Italian Holiday," lantern views, etc. 6 p.m.

Society of Arts (Cantor Lectures).—"The Theory of the Microscope"—II., by Mr. Conrad Beck, F.R.M.S. 8 p.m.

University of London (South Kensington).—Mr. Banister Fletcher on "French Gothic Cathedrals." 8 p.m.

TUESDAY, DECEMBER 3.

Institute of Sanitary Engineers (Students' Lecture).—Dr. H. W. G. Macleod on "Water and Water Supply." 8 p.m.

Institution of Civil Engineers.—Mr. T. E. Stanton on "Experiments on Wind Pressure." 8 p.m.

WEDNESDAY, DECEMBER 4.

Architectural Association Discussion Section.—Mr. A. N. Wilson on "Common-sense Design in Fireplaces." 7.30 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

Society of Arts.—Sir Edward W. Brabrook, C.B., on "Old Age Pensions." 8 p.m.

THURSDAY, DECEMBER 5.

Civil and Mechanical Engineers' Society (Caxton Hall).—Mr. A. T. Walmisley on "Retaining Walls." 8 p.m.

Institution of Electrical Engineers.—Mr. J. Pigg on "Automatic Cab-Signalling on Locomotives." 8 p.m.

FRIDAY, DECEMBER 6.

Architectural Association.—Mr. Paul Waterhouse on "Laying-out London." 7.30 p.m.

Glasgow Architectural Craftsmen's Society.—Mr. C. Forsyth on "Impressions of Italy." 8 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. R. T. Deane on "Methods of Vaporising Liquid Fuels, used with Internal-Combustion Engines, as applied to Road Vehicles." 8 p.m.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

November 13.—By JOHN M. LEEDER & SON (at Bridgend).

Porthcawl, Glamorgan.—11, Esplanade, f., p...	£600

November 14.—By MADDISON, MILES, & MADDISON (at Great Yarmouth).

Great Yarmouth—98, Northgate-st.; 1, 2, 3, and 4, Apollo-ter., and cottage, f., p.....	1,203

STEPHENSON & ALEXANDER (at Cardiff).

Eglwysilan, Glamorgan.—Enclosure of land, 43 a. 3 r. 28 p., f.	800
Caerphilly, Glamorgan.—Bedwas-rd., f.g.r. 7l. 5s., reversion in 58 yrs.....	410

November 18.—By BURLEY & BRACKENBURY.

Acton.—Gunnersbury-la., The Hermitage, f., y.r. 28l.....	420
17s, Avenue-rd, f., y.r. 30l.....	400

By GARRETT, WHITE, & POLAND.

Sydenham.—Venner-rd., f.g.r. 8l. 10s., reversion in 73 yrs.....	200
Peckham.—Copleston-rd., f.g. rents 13l. 4s., reversion in 70 yrs.....	330

By KNIGHT & CO.

South Kensington.—13, Drayton-gdns., u.t. 36 yrs., g.r. 10l., p.....	800

By MONTAGU & ROBINSON.

Kennington-road.—(18, 20, 22, and 26), block of flats and s., u.t. 66 yrs., g.r. 75l., y. and w.r. 1,039l. 7s.	3,210

By THOMPSON & WOOD (at Great Grimsby).
North Thoresby, Lincoln.—Copyhold estate, 35½ acres £1,590

November 19.—By S. WALKER & SON.
Fleet-street.—42, Fetter-la., f., area 2,120 ft... 1,600
By NIXON, TOONE, & HARRISON (at Nuneaton).
Burton Hastings, Warwick.—Manor Farm, 147 a. 3 r. 10 p., f. 4,000

By JOHN M. LEEDER & SON (at Swansea).
Aberavon, Glamorgan.—Patent Lime-Sand Brick Works, l. (as a going concern)..... 1,879
Cwmburla, Swansea.—Gate House Hotel, p.h., f. 900
Ystalyfera, Swansea.—The Old Swan Inn, p.h.; u.t. 50 yrs., g.r. 13l., y.r. 52l. 1,750
Swansea.—28, Bond-st., u.t. 53 yrs., g r. 3l. 7s. 6d., p. 250

By ALBERT WARD (at Nuneaton).
Nuneaton, Warwick.—Five residences and two cottages, f., y.r. 93l. 8s. 1,785

November 20.—By BAXTER, PAYNE, & LEPPER.
Chislehurst.—Bromley-rd., f.g. rents 34l., reversion in 60 yrs..... 860

By CARTWRIGHT & ETCHES.
Westminster.—18, 20, and 22, Chadwick-st., f., y.r. 67l. 12s. 1,000
Pimlico.—8, 9, and 10, 18, 19, and 22, Robert-st., f., w.r. 161l. 4s..... 1,285
Westminster.—40 and 42, Vincent-sq., u.t. 16½ yrs., g.r. 16l., y.r. 120l..... 740
4 and 5, Stanford-st., u.t. 16½ yrs., g.r. 10l., w.r. 90l. 9s. 285

By FIELD & SONS.
Old Kent-road.—(59, 61, 63, 65, 67), building lease 99 yrs. at p.a. 130

By E. HUGH HENRY.
Battersea.—70, 72, 74, 82, and 84, Ingrave-st., f., w.r. 135l. 4s. 980

November 21.—By BISLEY & SONS.
Catford.—29, 31, and 181, Minard-rd., u.t. 988 yrs., g.r. 15l. 6s., y. and e.r. 78l. 660
44, Fordel-rd., u.t. 988 yrs., g.r. 5l. 1s., y.r. 28l. 225

By C. RAWLEY, CROSS, & CO.
Shepherd's Bush.—29, Frithville-gdns., u.t. 68 yrs., g.r. 8l., y.r. 40l. 410
Brixton Hill.—15, Horsford-rd., u.t. 64 yrs., g.r. 5l., e.r. 32l. .....
Harrow.—Longley-rd., Homedale, u.t. 88 yrs., g.r. 5l. 10s., p. 330

By W. H. HUGHES & CO.
Upper Norwood.—20 and 22, South-vale, f., y.r. 42l. 655

By MAY & ROWDEN.
Finchley.—Holly-pk., f.g.r. 28l., reversion in 98 yrs..... 680
10, Holly-pk., f., y.r. 40l..... 600
11, Holly-pk., u.t. 98 yrs., g.r. 7l., y.r. 40l.... 350

By C. C. & T. MOORE.
Leyton.—13 and 17, Leyton-pk.-rd., f., w.r. 52l. 620

By ORGILL, MARKS, & BARLEY.
Whitechapel.—Well-st., "The Black Horse" p.h., f., y.r. 110l..... 1,430

By STIMSON & SONS.
Watford, Herts.—19, Derby-rd., f., e.r. 30l.... 370
Nunhead.—2 and 4, Gibbon-rd., u.t. 64 yrs., g.r. 14l., y.r. 90l..... 990
Pimlico.—4, Sutherland-pl., u.t. 26 yrs., g.r. 9l., w.r. 117l..... 385
Brixton.—88, 90, 92, and 94, Lyham-rd., u.t. 17 yrs., g.r. 12l. 12s., w.r. 102l. 14s..... 340
Kennington Park.—19, Kennington-pk.-gdns., u.t. 55½ yrs., g.r. 6l. 10s., e.r. 42l..... 300

By JOSEPH STOWER.
Balham.—25, 27, 29, 31, and 35, Belleville-rd., f., y.r. 176l..... 2,125
11 and 13, Ravenswood-rd., u.t. 63 yrs., g.r. 12l. 500
Wandsworth.—44, Merton-rd. (s.), f., y.r. 45l.. 550
46, 48, and 50, Merton-rd., f., w.r. 111l. 16s.. 900

By J. A. & W. THARP.
Finsbury.—34, Clifton-st. (s.), u.t. 11 yrs., g.r. 7l. 10s..... 150

November 22.—By FRANCIS DOD & CO.
Stoke Newington.—12, Victoria-gr. West, u.t. 36 yrs., g.r. 3l., e.r. 39l..... 215
94, Park-st, u.t. 54 yrs., g.r. 4l. 9s., e.r. 32l.. 265
19 and 21, Sydner-rd., u.t. 63 yrs., g.r. 10l., y.r. 64l..... 530
1A and 3, Gainsborough-rd., u.t. 52 yrs., g.r. 10l., y.r. 60l. 560
Anerley.—1 and 2, York-villas, u.t. 24 and 56 yrs., g.r. 23l., e.r. 80l. 245
Beckenham.—109, Marlow-rd., u.t. 69 yrs., g.r. 8l., y.r. 28l..... 160

By MAY & PHILPOT.
Clapton.—100A, Overbury-st., u.t. 72 yrs., g.r. 10l., e.r. 90l. 105

By VERYARD & YATES.
Brixton.—144, Mayall-rd., u.t. 61 yrs., g.r. 5l. 5s., y.r. 30l. 270

Contractions used in this list.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for office; s. for shops; ct. for court.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum, and Canada 21s. 8d. (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

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PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks.....	1 7 0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1 6 0	" " "
Picked Stocks for Facings	2 10 0	" delivered.
Flettons.....	1 6 0	" at railway depôt,
Red Wire Cuts ...	1 14 0	" " "
Best Fareham Red	3 12 0	" " "
Best Red Pressed Ruabon Facing..	5 0 0	" " "
Best Blue Pressed Staffordshire ;...	3 15 0	" " "
Do. Bullnose	4 0 0	" " "
Best Stourbridge Fire Bricks	3 14 0	" " "
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers.....	12 0 0	" " "
Headers.....	11 0 0	" " "
Quoins, Bullnose, and Flats	16 0 0	" " "
Double Stretchers	19 0 0	" " "
Double Headers ...	16 0 0	" " "
One Side and two Ends	19 0 0	" " "
Two Sides and one End.....	20 0 0	" " "
Splays, Chamferred, Squints..	20 0 0	" " "
Best Dipped Salt Glazed Stretchers, and Header.	12 0 0	" "
Quoins, Bullnose, and Flats	14 0 0	" " "
Double Stretchers	15 0 0	" " "
Double Headers ...	14 0 0	" " "
One Side and two Ends	15 0 0	" " "
Two Sides and one End	15 0 0	" " "
Splays, Chamferred, Squints..	14 0 0	" " "
Second Quality White and Dipped Salt Glazed	2 0 0	" less than best.

	s. d.	
Thames and Pit Sand	7 0	per yard, delivered.
Thames Ballast	5 6	" "
Best Portland Cement	30 0	per ton, "
Best Ground Blue Lias Lime	19 6	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½	" "
PORTLAND STONE (20 ft. average)— Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf...	2 1	" "
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf...	2 2½	" "

	s. d.	
Aucaster in blocks.....	1 10	per ft. cube, deld. rly. dep't.
Beer "	1 6	" "
Greenshill "	1 10	" "
Darley Dale in blocks ...	2 4	" "
Red Corsehill " ...	2 2	" "
Closeburn Red Freestone	2 0	" "
Red Mansfield "	2 4	" "

YORK STONE—*Robin Hood Quality.*

Scappled random blocks.	2 10	" "
6 in. sawn two sides landings to sizes (under 40 ft. super.).....	2 3	per ft. super., "
6 in. rubbed two sides ditto, ditto	2 6	" "
3 in. sawn two sides slabs (random sizes).....	0 11½	" "
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½	" "
1½ in. to 2 in. ditto, ditto	0 6	" "
HARD YORK—		
Scappled random blocks.	3 0	per ft. cube "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8	per ft. super. "
6 in. rubbed two sides ditto	3 0	" "
3 in. sawn two sides slabs (random sizes)	1 2	"
2 in. self-faced random flags	0 5	" "

SLATES.

In. In.	£ s. d.	
20×10 best blue Bangor	13 2 6	per 1000 of 1200 at r. d.
20×12 " "	13 17 6	" "
20×10 first quality "	13 0 0	" "
20×12 " "	13 15 0	" "
16×8 " "	7 5 0	" "
20×10 best blue Portmadoc	12 12 6	"
16×8 " "	6 12 6	" "
20×10 best Eureka unfading green...	15 17 6	" "
20×1 " " ...	18 7 6	" "
18×10 " " ...	13 5 0	"

SLATES (*continued*).

In. In.	£ s. d.	
16×8 best Eureka unfading green ...	10 5 0	per 1000 of 1200 at r. d.
20×10 permanent green	11 12 6	" "
18×10 " "	9 12 6	" "
16×8 " "	6 12 6	" "

TILES.

	s. d.	
Best plain red roofing tiles...	42 0	per 1000 at rly. depôt.
Hip and Valley tiles ...	3 7	per doz. "
Best Broseley tiles	50 0	per 1000 "
Do. Ornamental tiles	52 6	" "
Hip and Valley tiles ...	4 0	per doz. "
Best Ruabon red, brown, or brindled do. (Edwards) ...	57 6	per 1000 "
Do. Ornamental do.	60 0	" "
Hip tiles	4 0	per doz. "
Valley tiles	3 0	" "
Best Red or Mottled Staffordshire do. (Peakes)	51 9	per 1000 "
Do. Ornamental do.	54 6	" "
Hip tiles	4 1	per doz. "
Valley tiles	3 8	" "
Best "Rosemary" brand plain tiles	48 0	per 1000 "
Best Ornamental tiles	50 0	" "
Hip tiles	4 0	per doz. "
Valley tiles.....	3 8	" "
Best "Hartshill" brand plain tiles, sand-faced	50 0	per 1000 "
Do. pressed	47 6	" "
Do. Ornamental do.	50 0	" "
Hip tiles	4 0	per doz. "
Valley tiles	3 6	" "

WOOD.

BUILDING WOOD.	At per standard, £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13 10 0	... 15 0 0
Deals: best 3 by 9	13 0 0	... 14 0 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 0 0	... 12 0 0
Battens: best 2½ by 6 and 3 by 6...	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less thn best.
Battens: seconds.....	0 10 0	" "
2 in. by 4 in. and 2 in. by 6 in....	9 0 0	... 10 0 0
2 in. by 4½ in. and 2 in. by 5 in...	8 10 0	... 9 10 0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	"
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 4 10 0	... 5 0 0
Seconds	4 0 0	... 4 10 0
Small timber (8 in. to 10 in.) ...	3 12 6	... 3 15 0
Small timber (6 in. to 8 in.)	3 0 0	... 3 10 0
Swedish balks	2 10 0	... 3 0 0
Pitch-pine timber (30 ft. average)	4 0 0	... 4 15 0
JOINERS' WOOD.	At per standard.	
White Sea: first yellow deals, 3 in. by 11 in.	24 0 0	... 25 0 0
3 in. by 9 in.	22 0 0	.. 23 0 0
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	... 18 0 0
Second yellow deals, 3 in. by 1 in.	18 10 0	... 20 0 0
" " 3 in. by 9 in.	17 10 0	... 19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	... 14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	13 10 0	... 15 0 0
Battens, 2½ in. and 3 in. by 7 in.	11 0 0	... 12 0 0
Petersburg first yellow deals, 3 in. by 11 in.	21 0 0	... 22 10 0
Do. 3 in. by 9 in.....	18 0 0	... 19 10 0
Battens.....	13 10 0	... 15 0 0
Second yellow deals, 3in. by 11in.	16 0 0	... 17 0 0
Do. 3 in. by 9 in.	14 10 0	... 16 0 0
Battens.....	11 0 0	... 12 10 0
Third yellow deals, 3 in. by 11 in.	13 0 0	... 14 0 0
Do. 3 in. by 9 in.....	12 10 0	... 14 0 0
Battens.....	10 0 0	... 11 0 0
White Sea and Petersburg— First white deals, 3 in. by 11 in.	14 10 0	... 15 10 0
" " 3 in. by 9 in.	13 10 0	... 14 10 0
Battens.....	11 0 0	... 12 0 0
Second white deals, 3 in. by 11 in.	13 10 0	... 14 10 0
" " 3 in. by 9 in.	12 10 0	... 13 10 0
" " battens	10 0 0	... 11 0 0
Pitch-pine: deals.....	18	0 ... 21 0 0
Under 2 in. thick extra	0 10 0	... 1 0 0
Yellow Pine—First, regular sizes	44 0 0	upwards.
Oddments	32 0 0	"
Seconds, regular sizes	33 0 0	"
Yellow Pine oddments	28 0 0	"
Kauri Pine—Planks, per ft. cube..	0 3 6	... 0 5 0
Danzig and Stettin Oak Logs— Large, per ft. cube	0 3 0	... 3 6
Small " "	0 2 6	... 2 9
Wainscot Oak Logs, per ft. cube..	0 5 6	... 0 6 0
Dry Wainscot Oak, per ft. sup. as inch...	0 0 8½	... 0 9½
¾ in. do. do	0 0 7	... —
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch ...	0 0 9	... 0 1 0
Selected, Figury, per ft. super. as inch	0 1 6	... 0 2 6
Dry Walnut, American, per ft. super. as inch.....	0 0 10	... 0 1 0
Teak, per load	17 0 0	... 22 0 0
American Whitewood Planks, per ft. cube.....	0 4 0	... 5 0
Prepared Flooring, etc.—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	... 0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	... 0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	... 1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	... 0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	... 0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	... 0 16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	... 0 13 6
1 in. by 7 in. " "	0 14 0	... 0 18 0
¾ in. by 7 in. white " "	0 10 0	... 0 11 6
1 in. by 7 in. " "	0 12 9	... 0 15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton.						
	£	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	7	15	0	...	8	5	0
Compound Girders, ordinary sections	10	0	0	...	11	0	0
Steel Compound Stanchions	12	10	0	...	13	10	0
Angles, Tees, and Channels, ordinary sections	9	15	0	...	10	15	0
Flitch Plates	9	15	0	...	10	15	0
Cast Iron Columns and Stanchions including ordinary patterns	8	0	0	...	9	0	0

METALS.

	Per ton, in London.						
	£	s.	d.		£	s.	d.
IRON—							
Common Bars	8	10	0	...	9	0	0
Staffordshire Crown Bars, good merchant quality	9	5	0	...	9	15	0
Staffordshire "Marked Bars"...	11	0	0	...	—		
Mild Steel Bars	9	10	0	...	9	15	0
Hoop Iron, basis price	9	15	0	...	10	0	0
" " Galvanised	17	10	0	...	—		
(*And upwards, according to size and gauge.)							
Sheet Iron Black—							
Ordinary sizes to 20 g.	10	0	0	...	—		
" " 24 g.	11	0	0	...	—		
" " 26 g.	12	10	0	...	—		
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	16	0	0	...	—		
Ordinary sizes to 22 g. and 24 g.	16	10	0	...	—		
" " 26 g.	17	0	0	...	—		
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	19	0	0	...	—		
" " 22 g. and 24 g.	19	10	0	...	—		
" " 26 g.	21	0	0	...	—		
Galvanised Corrugated Sheets—							
Ordinary sizes 6 ft. to 8 ft. 20 g.	16	0	0	...	—		
" " 22 g. and 24 g.	16	5	0	...	—		
" " 26 g.	17	10	0	...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	13	0	0	...	—		
Best Soft Steel Sheets, 22 g. & 24 g.	14	0	0	...	—		
" " " 26 g.	16	0	0	...	—		
Cut Nails, 3 in. to 6 in.	10	15	0	...	11	5	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

	Per ton, in London.						
	£	s.	d.		£	s.	d.
LEAD—Sheet, English, 3lb. and up.	21	10	0	...	—		
Pipe in coils	22	0	0	...	—		
Soil pipe	24	10	0	...	—		
Compo pipe	25	10	0	...	—		
ZINC—Sheet—							
Vieille Montagne ...ton	29	0	0	...	—		
Silesian	28	15	0	...	—		
COPPER—							
Strong Sheet ...per lb.	0	1	4	...	—		
Thin "	0	1	5	...	—		
Copper nails "	0	1	3	...	—		
BRASS—							
Strong Sheet "	0	1	2	...	—		
Thin "	0	1	3	...	—		
TIN—English Ingots "	0	1	5	...	—		
SOLDER—Plumbers' "	0	0	8	...	—		
Tinmen's "	0	0	10	...	—		
Blowpipe "	0	1	0	...	—		

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

15 oz. thirds	2½d.	per ft. delivered.
" fourths	1¾d.	" "
21 oz. thirds	3¾d.	" "
" fourths	2¾d.	" "
26 oz. thirds	4¼d.	" "
" fourths	3¼d.	" "
32 oz. thirds	5d.	" "
" fourths	4¼d.	" "
Fluted Sheet, 15 oz.	3¼d.	" "
" 21 oz.	4¼d.	" "

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

¼ Hartley's	2¼d.	per ft. delivered
⅛ "	2¾d.	" "
⅛ "	3d.	" "
Figured and Oxford Rolled "Oceanic" Glass, white ...	4d.	" "
Do. " tinted ...	5¼d.	" "

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	2	1
" " " in barrels	"	0	2	2
" " " in drums	"	0	2	3
Boiled " " in pipes	"	0	2	2
" " " in barrels	"	0	2	3
" " " in drums	"	0	2	4
Turpentine in barrels	"	0	3	0
" in drums	"	0	3	2
Genuine Ground English White Lead	per ton	26	0	0
Red Lead, Dry	"	25	0	0
Best Linseed Oil Putty	per cwt.	0	7	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon.		
	£	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Reynhell Flatting Varnish	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	6
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance. The Editor cannot undertake to read and consider articles offered for acceptance unless they are type-written.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted*

ASPLEY HEATH (Beds.).—For new dining-room at "Brackenside" for Mr. J. C. Cleghorn. Messrs. Stonebridge & Foll, architects, Bedford and Woburn Sands:—

F. Lee	£135	J. F. Smith*	£127

BRAYBROOKE (Northants).—For erecting new public Council schools, for Northampton County Council. Messrs. Cooper & Williams, architects, Kettering:—

Smith & Cotton	£1,003 10 0	E. Brown & Son, Ltd. ..	£847 10 0
Bott, Son, & Palmer	999 0 0	O. P. Driver..	870 0 0
Hocksley Bros.	965 0 0	Co-operative Builders, Ltd.	830 2 3
W. W. Brown	955 0 0	T. Hickman ..	865 0 0
W. Higgins ..	899 0 0	A. Bamford ..	850 0 0
G. L. Martin..	924 0 0	Smith, Edmunds, & Co., Kettering*‡	830 0 0
G. Jarman & Son	921 0 0	Smith & Manings§	787 0 0
Phillips & Slew	890 0 0		
R. Read	871 0 0		
C. & F. Henson & Co.	865 0 0		

‡ Allowing for additional glazed brick dado to internal walls, £45. § Withdrawn.

BRIGHTLINGSEA (Essex).—For the erection of a new police station. Mr. Frank Whitmore, County Architect, Chelmsford:—

F. & E. Davey..	£3,185 0	Everitt & Son..	£2,800 0
Smith & Son ..	3,145 0	W. Chambers ..	2,749 0
B. B. & M. Barrel	3,099 0	S. A. Kenney ..	2,725 0
H. Lord	3,056 0	Spencer, Santo, & Co.	2,685 0
Potter & Son ..	3,055 0	Parren & Co. ..	2,625 0
F. Bennett	2,950 0	R. Beaumont, Cholcester*..	2,598 0
G. Sharp	2,899 10		
Thomas & Edge	2,875 0		

BRIXHAM (Devon).—For constructing a shelter at Brixham Pier, for the Brixham Urban District Council. Mr. John Silley, architect:—

R. Pollard & Co..	£121 10	P. Hayman, Brixham*	£75 10

BUNDORAN (Ireland).—For erecting a male orphanage. Mr. W. A. Scott, A.R.I.B.A., 45, Mountjoy-square, Dublin:—

P. Hanway..	£4,835 0 0	P. Nolan....	£4,242 0 0
Hynes & Sons	4,640 0 0	R. Colhoun..	3,978 7 0
D. McCaffrey	4,607 10 10	J. Callan	3,895 0 0
J. Wynne ..	4,600 0 0	J. Clarence, Ballisodare*	3,595 0 0
J. Stewart ..	4,350 0 0		
McKee & McNally ..	4,287 0 0		

CARSHALTON.—For repairs and tar-paving, in Talbot-road and the Square, for the Urban District Council. Mr. W. Willis Gale, Surveyor, District Council Offices, High-street, Carshalton:—

	Talbot-road.	The Square.
Potter & Co.	£384 14 4	£303 4 4
A. T. Catley	369 4 0	295 18 0
Kavanagh & Co.	359 12 6	260 1 11
T. Free & Sons ..	342 3 7	264 8 6
E. & E. Iles.....	343 1 0	269 8 2
mons, Ltd.	313 16 10	236 2 9
Chitteden & Simons	313 2 4	236 4 0
J. B. Potter	307 0 0	237 0 0
H. Woodhams ..	279 12 4	256 6 3
G. Aedy	281 0 0	218 0 0*
J. May, Ashstead		

[Surveyor's estimate—Talbot-road, £324 18s.; the Square, £216.]

CUBRINGTON.—For erecting a club house, for the Manchester Unity of Oddfellows. Mr. F. P. Trepess, architect, 1, Church-street, Warwick. Quantities by architect:—

A. I. Lord	£895 0	T. Pratt	£795 0
G. F. Smith & Sons	885 0	R. P. Gathercole	759 16
K. Bowen	876 0	E. Smith & Son..	750 0
T. Bailey & Co. ..	812 0		

DEVONPORT.—For levelling, paving, and completing the following lane, viz.:—Contract No. 118, lane, rear of south side of Pasley-street (section 1), for the Corporation. Mr. J. F. Burns, Borough Surveyor, Municipal Offices, Ker-street, Devonport:—

T. Doney	£558 2 6	Snawdon Bros., Plymouth*	£460 1 8
Pethick Bros....	533 5 6		

FINCHLEY.—For constructing a surface-water sewer, Great North-road, and surface-water sewer, Station-road, for the Urban District Council. Mr. C. J. Jenkin, Surveyor, Council Offices, Church End, Finchley, N. Quantities by Surveyor:—

	Great North-road	Station-road.
D. R. Paterson	£166 0 10	£453 4 4
C. W. Killingback	144 16 5	486 19 4
T. Adams.....	119 16 6	465 18 10
J. W. Pedrette.....	114 0 0	465 0 0
O. T. Gibbons.....	96 0 0	373 18 10
N. W. Muirhead	94 5 6	466 2 10
G. Bell & Sons.....	88 0 0	401 5 1
Pedrette & Co.....	87 18 3	475 9 4
Willis & Powis	86 2 10	357 12 8
A. T. Catby.....	80 0 0	450 0 0
W. Iles.....	78 8 9	341 0 0
J. Jackson, Forest Gate, E.	70 4 9*	294 3 2*
G. Mann	80 0 0	379 3 6

FULFORD.—For temporary sewage disposal works (Contract A), for Escrick Rural District Council. Messrs. Fairbank & Son, C.E., Lendal Chambers, York:—
C. Martin, 3, Longfield-terrace, York £101 11 10

GORTON.—For erecting Thornwood-avenue Council School, for the Education Committee. Mr. P. D. Lodge, 34, John Dalton-street, Manchester, and Mr. A. E. Dixon, 9, St. James'-square, Manchester, architects. Quantities by Messrs. Chas. Jackson & Son, 23, Brazennose-street, Manchester:—
W. Brown & Sons, Trafford-road, Salford, Manchester* £10,695

HARLOW (Essex).—For the erection of a new police station. Mr. Frank Whitmore, County Architect, Chelmsford:—

Whiffen & Son	£4,555 12 8	Lawrence & Son	£4,124 0 0
Holliday & Greenwood	4,500 0 0	Coulston & Lofts	4,040 0 0
Pavitt & Sons	4,385 0 0	Hammond & Son.....	3,923 0 0
W. Winch....	4,350 0 0	Hacksley Bros.	3,880 0 0
Glasscock & Son	4,349 0 0	F. & A. Wilmott	3,878 0 0
F. & E. Davey	4,337 0 0	Thomas & Edge	3,872 0 0
P. Paul	4,290 0 0	Spencer, Santo, & Co.	3,850 0 0
F. Bennett....	4,275 0 0	Parren & Sons, Erith*.....	3,650 0 0
Foster & Son	4,250 0 0		
Mason & Son..	4,200 0 0		
Mattock Bros.	4,157 0 0		

ISLEWORTH.—For road-works, for the Heston and Isleworth Urban District Council:—

	Argyll-avenue.	Castle-place.
Fry Bros.....	£1,080 9 3	£126 19 9
T. Watson, jun. ..	1,035 0 0	106 0 0
Dykes	980 19 9	123 12 0
Free & Sons.....	976 5 6	111 15 2
Gibbons	951 9 0	117 6 6
W. H. Wheeler ..	948 0 8	98 9 2
T. Adams.....	934 3 9	101 2 0
Brummell	927 16 5	99 0 4
J. Colbourn.....	914 10 0	141 1 0
R. W. Swaker....	902 1 4	135 0 0
Middlesex Contracting Co.	885 0 0	79 0 0
Mowlem & Co., Ltd.	884 0 0	75 0 0*
Thacker & Co....	880 7 9	127 11 9
T. Chapman	857 8 6*	82 18 1

ISLEWORTH.—For extension of the County School, Isleworth, for the Middlesex County Council. Mr. H. G. Crothall, Architect to the Middlesex Education Committee:—

T. J. Messom & Co.	£4,645	G. Bollom	£4,026
Spiers & Son	4,480	J. Barker & Co., Ltd.	3,988
Wisdom Bros.	4,339	H. Knight & Son ..	3,976
Treasure & Son....	4,338	W. Lacey	3,912
A. Francis, Ltd. ..	4,275	J. Dorey & Co.	3,890
W. Lawrence & Son	4,144	J. Stewart	3,860
A. Fairhead & Son	4,127	T. J. Hawkins & Co.	3,840
F. G. Minter	4,090	W. J. Dickens	3,791
W. J. Renshaw	4,033	A. & B. Hanson‡ ..	3,755

‡ Recommended for acceptance.

KIRKCALDY.—For the erection of a swing bridge of 50-ft. span, for the Corporation. Messrs. Rendel & Robertson, engineers, 8, Great George-street, London:—

Hanna, Donald, & Wilson....	£6,759 11 0	P. & W. MacLellan, Ltd.	£5,198 15 2
Motherwell Bridge Co., Ltd.	5,714 1 9	Orr, Watt, & Co.	5,006 10 0
Thames Ironworks	5,564 19 11	Brandon Bridge-building Co. Motherwell*	4,827 8 4

LATCHLEY.—For building a farmhouse at Solomon's Farm, for His Grace the Duke of Bedford, K.G. Mr. T. D. Ratcliffe, surveyor, Bedford Estate Office, Tavistock:—

Hosken & Adams	£830 0 0	J. L. Richards..	£667 16 0
J. H. Ball.....	784 14 6	Yole & Collacott	642 0 0
E. Rendell	780 0 0	N. R. Roxkilly	598 9 6
Medland, Clifton, & Biddlecombe	692 13 0	W. G. Hosken, Compton*....	550 0 0
J. Kelly	685 0 0	J. Martin.....	457 0 0
Kerswill & Collacott	672 4 6		

LEICESTER.—For erecting a children's receiving home, for the Guardians. Mr. W. E. Keites, architect, Market-street, Leicester:—

T. E Johnson & Son	£2,200 0	Hutchinson & Son	£2,011 0
A. W. Chambers	2,097 10	Herbert & Son..	2,009 0
Haskard, Rudkin, & Beck	2,050 0	F. Elliott	1,967 0
W. Hanson*....	2,050 0	W. M. Sharp ..	1,967 0
Hardington & Elliott	2,030 0	W. Stanger	1,943 0
Bowles & Sons..	2,029 0	E. Fox	1,940 0
		J. Chapman....	1,930 0
		F. J. Bradford..	1,916 0

[All of Leicester.]

LEWISHAM.—For paving, etc., of part of Rutland-road, for the Borough Council. Mr. Ernest van Putten, Borough Surveyor:—

W. Pearce, David's-road, Forest Hill £186

LEWISHAM.—For paving, etc., Rubens-street, for the Borough Council. Mr. Ernest van Putten, Borough Surveyor:—

W. Pearce, David's-road, Forest Hill £314

LEWISHAM.—For paving, etc., part of Bargery-road, for the Borough Council. Mr. Ernest van Putten, Borough Surveyor:—

H. Woodham & Sons, Sangley-road, Catford £1,567

LONDON.—For the erection of Hackney Car-shed, Mare-street, for the London County Council:—

Martin, Wells, & Co., Ltd.	£30,565	0 0	Dick, Kerr, & Co.	£26,659	19 7
F. J. Coxhead	29,500	0 0	J. Chessum & Sons	26,480	0 0
G. Parker ..	29,248	0 0	Holliday & Greenwood	26,429	0 0
J. Allen & Sons, Ltd.	28,640	0 0	B. E. Nightingale	26,399	0 0
W. Shurmur & Sons, Ltd.	27,954	0 0	J. Behrend ..	26,285	0 0
A. N. Coles ..	27,740	0 0	G. E. Wallis & Sons, Ltd.	26,260	0 0
J. Barker & Co., Ltd. ..	27,655	0 0	Perry & Co..	26,248	0 0
J. Grover & Son	27,330	0 0	Patman & Fotheringham	25,693	0 0
L. H. & R. Roberts ..	27,284	0 0	C. R. Price ..	25,387	0 0
C. Wall, Ltd.	27,150	0 0	G. Munday & Sons	25102	0 0
J. McCormick & Sons....	26,896	0 0	F. & H. F. Higgs	25,027	0 0
C. Dearing & Son, Ltd..	26,797	0 0	Rowley Bros., Tottenham*	24,078	0 0

[The Architect's estimate, comparable with the above tenders, is £27,000.]

LUTON.—For paving, etc., Dale-road, Oak-road, and Ashburnham-road, for the Town Council. Mr. S. F. L. Fox, Borough Engineer, Town Hall, Luton:—

Oak-road.

G. Cowdrill, Hitchin-road, Luton* £221

Ashburnham-road.

G. Cowdrill, Hitchin-road, Luton* £68

Dale road.

G. Cowdrill, Hitchin-road, Luton* £367

MANSFIELD.—For kerbing, channelling, and forming proposed new roads on the High Oakham Park Estate. Mr. J. E. Goodacre, architect, 4, Stockwell-gate, Mansfield:—

C. P. Trentham	£1,598	10 0	Keetch & Walner	£780	0 0
Chapman & Ellis	1,135	16 9	H. Ashley	747	0 0
J. Hawley & Son	894	3 0	C. Fulcher	727	11 2
H. Greenwood..	835	0 0	H. Bennett....	690	18 10
Lane Bros.	824	0 0	J. Bradley, Mansfield* ..	665	14 6
G. Bilshaw & Son	800	0 0			

MARGATE.—For laying water mains, Princes-street, New-street, Market-street, Dane Hill-row, etc., for the Waterworks Department:—

T. Toban, 10, Clifton-gardens, Margate—Trench work for waterman, 5d. per yard; Trench work for service pipes, 4d. per yard; joint holes, 4d. each; watchman, 3s. per night.

MEXBOROUGH.—For market extensions, for the Urban District Council. Mr. G. Fenwick Carter, Surveyor, Council Offices, Mexborough. Quantities by Surveyor:—

Thornton & Sons	£1,415	0 0	G. Carr	£1,395	0 0
Boots & Son..	1,410	0 0	Sprakes & Son	1,341	1 6
Wellerman Bros.	1,400	0 0	Leadley & Co.	1,235	11 0
			T. Huntingdon	1,190	0 0
			G. H. Smith ..	1,175	0 0

NORTH NIBLEY.—For wrought-iron fencing and gates, etc., for new burial-ground, for Dursley Rural District Council. Messrs. T. Scammell & Son & Perkins, architects, St. John-street, Bristol:—

F. & R. Edbrooke	£265	0 0	W. J. Mullings..	£162	19 8
Loughborough Ironworkers, Ltd	259	0 0	J. Priest & Son, Ltd., Bristol*	154	14 9
T. L. Chew & Sons	239	15 0	W. Miller & Sons‡	134	8 2
Hill Bros.	225	10 0	J. Elwell‡.....	117	12 6
			J. Elwell§.....	174	17 6

‡ Fencing only. § Amended tender for all work.

ROSEHEARTY.—For drainage works, for the Town Council. Mr. J. Barron, M.Inst.C.E., 216, Union-street, Aberdeen:—

F. Mitchell & Son	£1,584	12 5	J. McConnachie	£1,186	15 9
I. McAdam & Sons.....	1,416	5 6	R. McKay ..	1,157	8 7
R. C. Bretner	1,373	2 0	Exors. of late P. Tawse, Aberdeen *	1,146	2 10
R. C. Crawford	1,285	9 8	J. H. Clark	1,144	14 8
J. Warrack	1,258	16 10			

RUSHDEN.—For the erection of mixed school with offices, playsheds, etc., for the Northamptonshire County Council. Messrs. Sharman & Archer, architects, Wellingborough:—

H. Sparrow ..	£4,420	0 0	F. Brown & Son, Ltd...	£3,997	0 0
E. Archer	4,297	0 0	R. Marriott..	3,970	0 0
Berrill & Green	4,250	0 0	Kettering Co-operative Builders, Ltd:	3,947	10 10
T. Willmott .	4,235	0 0	Y. Swindall	3,898	0 0
Goodman & Markett	4,200	0 0	W. Parkwood, Rushden*..	3,890	0 0
C. E. Baynes..	4,175	0 0			
Hacksley Bros.	4,079	0 0			

SALOP.—For reconstruction of infirmary drains in iron piping, for the Board of Directors. Mr. J. W. Pearson, North-Eastern Sanitary Inspection Association, 9, Albert-square, Manchester:—

G. Cave & Son	£365	1 0	McDonald & Hunt	£612	12 0
R. Whitehead & Son	784	5 10	Woodcock & Riley	594	18 2
Mellowes & Co., Ltd.....	752	12 5	A. R. Knight..	585	18 2
W. Beattie....	744	2 11	Scull Bros.	568	5 9
S. Wood	728	0 0	T. Pace, Shrewsbury*	540	1 9
H. Price	647	0 0			

WESTCLIFF-ON-SEA (Essex).—For erection of new police quarters. Mr. Frank Whitmore, County Architect, Chelmsford:—

H. W. Grainger...	£2 684		F. Jarvis.....	£2,191	
Stephen, Bastow, & Co.	2,497		Leaney & Co.....	2,170	
Smith & Sons	2 295		S. Flaxman	2,135	
F. E. Woodhams ..	2,377		F. & A. Wilmott ..	2,094	
F. Padley	2,255		W. E. Davey	2,085	
Pavitt & Sons	2,252		Hammond & Son ..	2,070	
W. E. Westgate....	2,250		Parren & Sons, Erith*.....	1,998	
F. & E. Davey	2,225				

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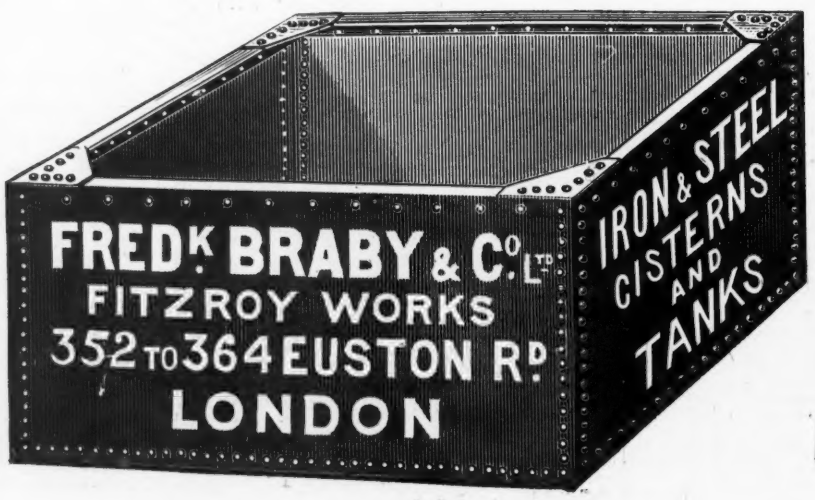

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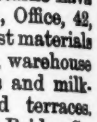

FALKIRK,
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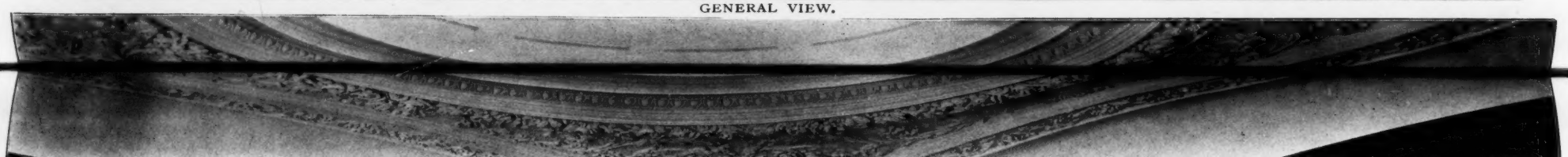
GENERAL VIEW.



GENERAL VIEW.

LANDING OF MAIN STAIRCASE.

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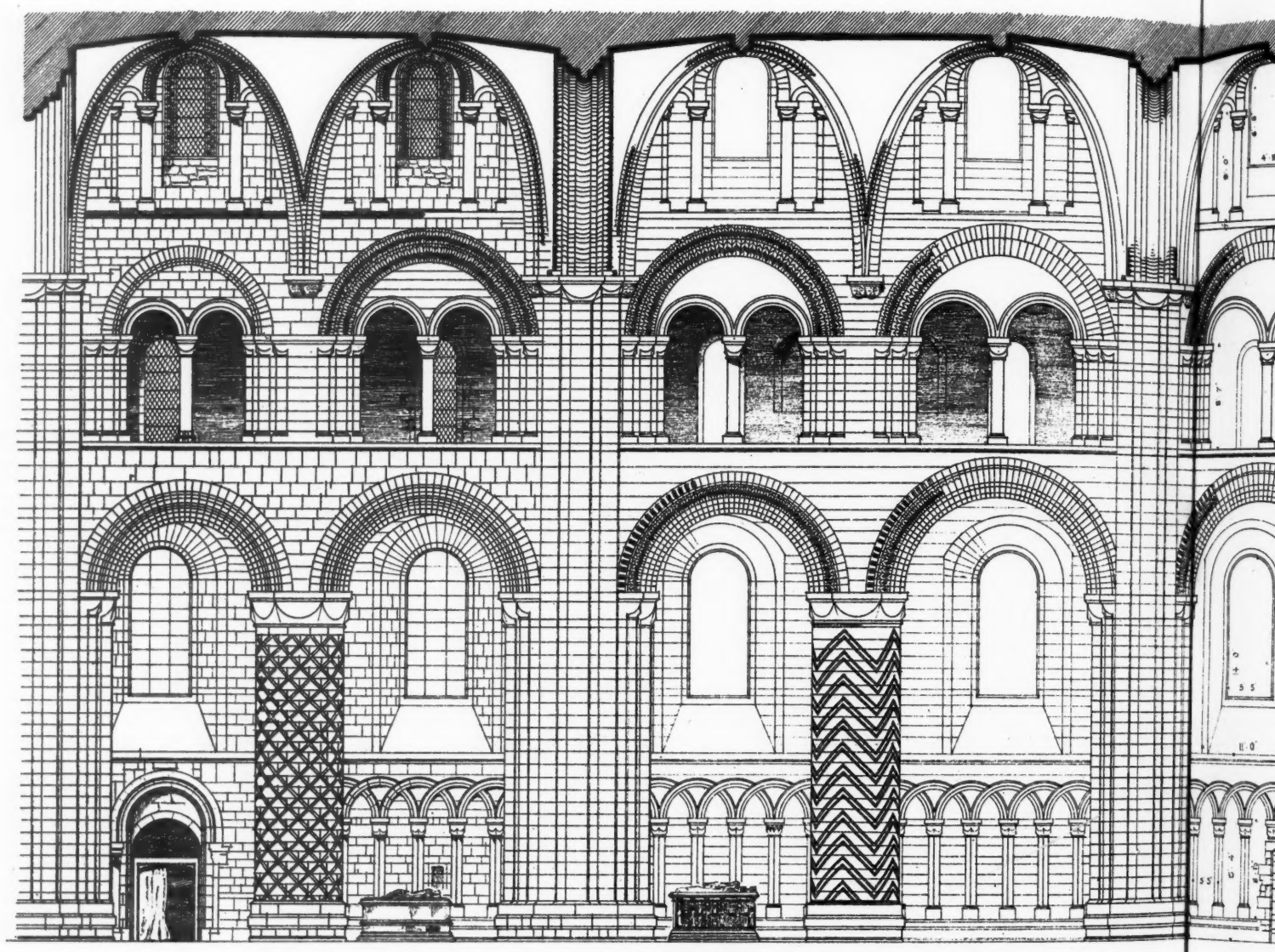
CATHEDRAL · CHVRCH · OF · DVRHAM · S

· SCALE OF



· FACADE ·

· NORTH · ALLEY ·

· STAINED GLASS WINDOWS ·

· SOVTH · AISLE ·

20' 4"

· BASE BROKEN AWAY ·

· TOMB OF RALPH · LORD NEVILLE ·

· TOMB OF JOHN · LORD NEVILLE ·

· CENTRE LINE OF ARCHES ·

· STONES OF · ST EADÉ SHR

8' 1" · 11' 6½ · 8' 0" · 12' 11" · 12' 11½ · 12' 11" · 8' 0" · 15' 8½ · 11' 11½ · 5' 7

AM · SOVTH · NAVE · ARCADE ·

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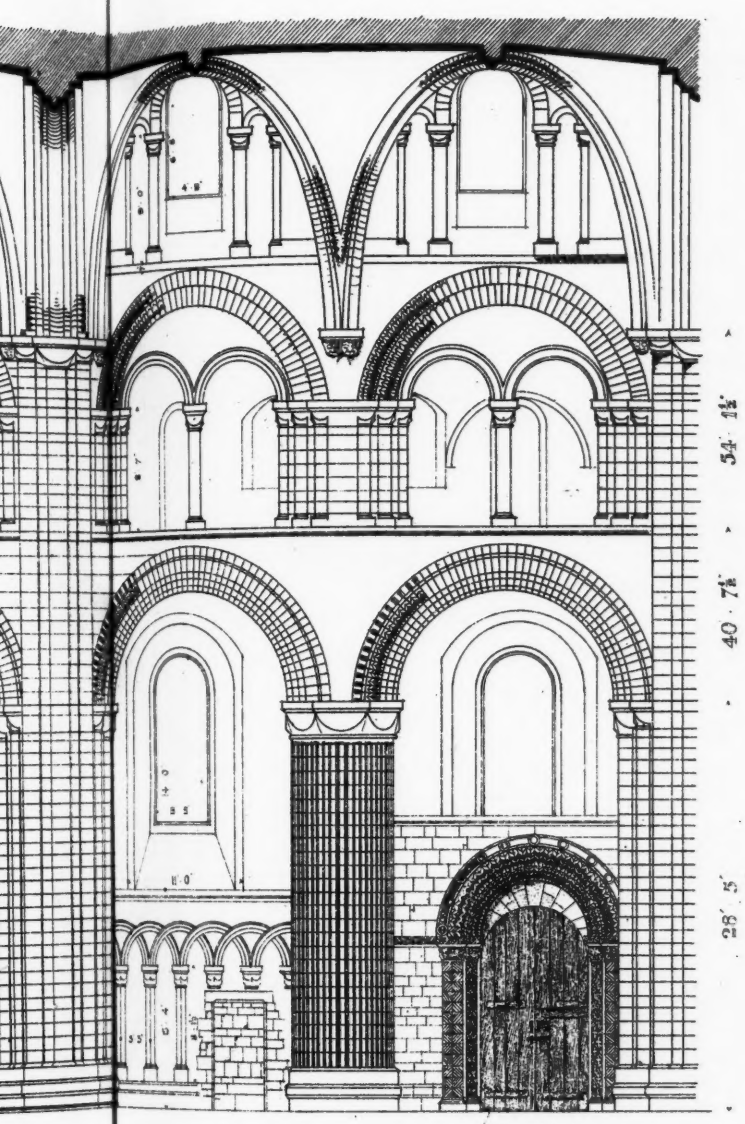
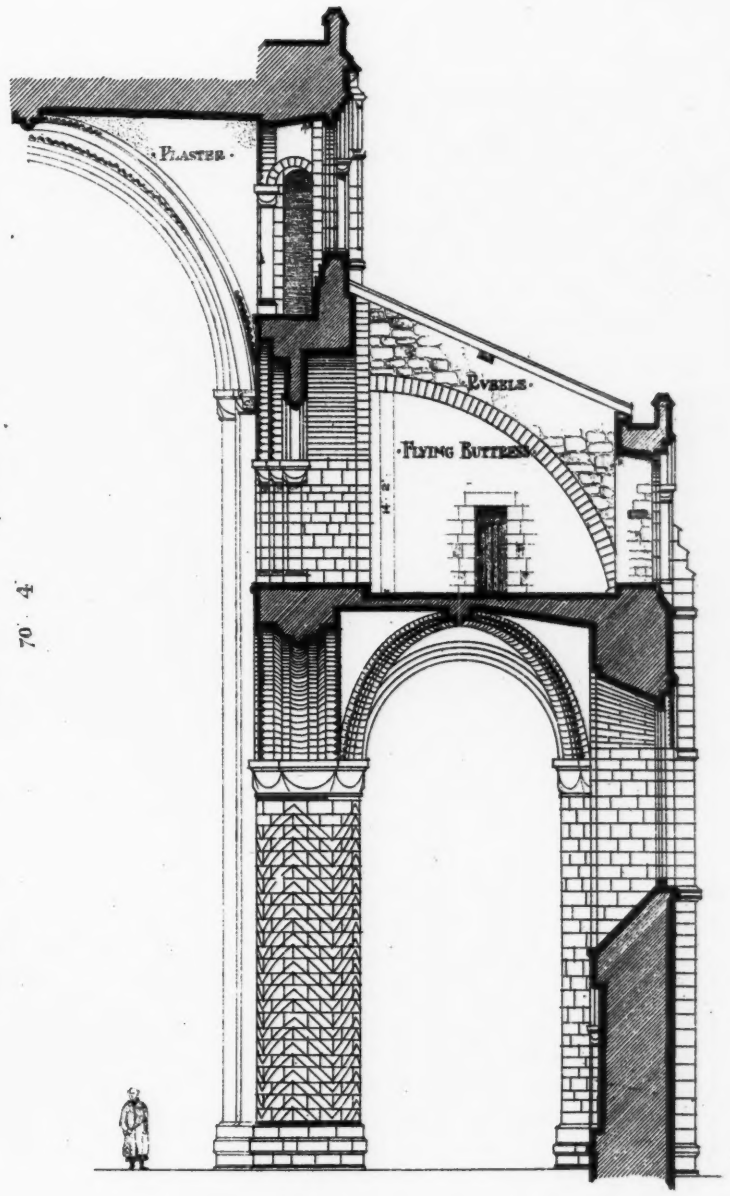


BLACK OAK DOORS



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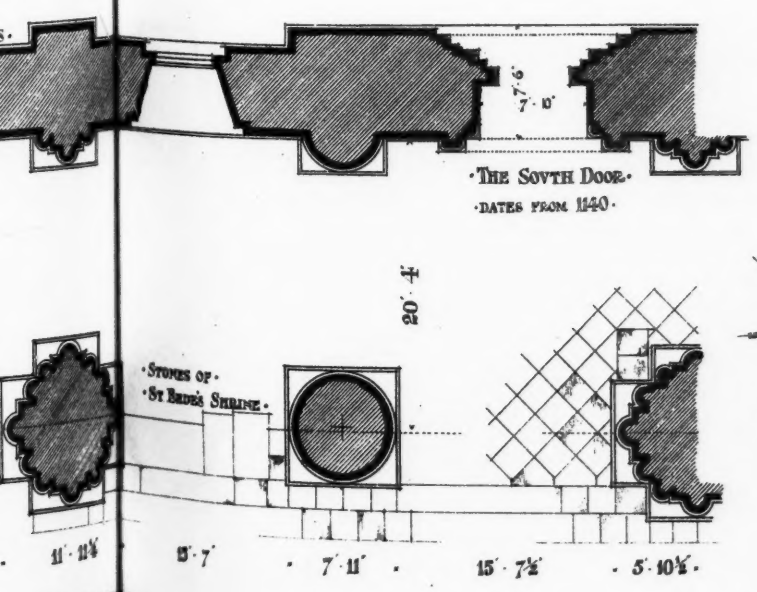

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DATES FROM 1140

· THE CATHEDRAL CHVRCH OF DVRHAM DEDICATED TO ST. CVTHBERT · WAS COMMENCED ON AVGVST 11TH 1093 · THIS MASSIVE NAVE WAS · BEGVN BY BISHOP WILLIAM ST CARILEF WHO DIED 1096 · HE WAS · SVCCEEDED 5 YEARS LATER BY RALPH FLAMBARD, WHO WE ARE · TOLD FOVND IT COMPLETED AS FAR AS THE 2ND COMPARTMENT · · BISHOP FLAMBARD DIED 1128 HAVING FINISHED THE WORK VP TO · · TO THE VAVLTING STAGE · BETWEEN THIS TIME AND THE ACCESSION · OF BISHOP GALFRID RVFVS 1133, THE MONKS ENTIRELY COMPLETED · · IT, CEILING IT WITH WOOD · THE ORIGINAL INTENTION OF · · VAVLTING WAS EVENTVALLY CARRIED OVT BY PRIOR MELSONBY · · BETWEEN 1233 AND 1244 · THE TRANSVERSE VAVLTING RIBS · · ARE POINTED · THIS IS CERTAINLY AN EARLY INSTANCE OF THE · · POINTED STYLE ALTHOVGH NOT A SINGVLAR ONE · NOTABLE · · FEATVRES OF THE TRIFORIVM ARE FLYING BVTTRESSES AND · · DEPRESSED ARCHES, THE LATTER BEING NECESSARY OWING TO · · THE INCREASED WIDTH OF THE BAYS AND THE DESIRE TO KEEP · · THE CLERESTORY LEVEL THROVGHOVT · ALTHOVGH MASSIVE · · THE NAVE HAS NO FEELING OF HEAVINESS, AND AS · · AN EXAMPLE OF NORMAN ARCHITECTVRE IS · · VNSVRPASSED ·

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